Submitted By

Newell Holdings Delaware, Inc.
Atlanta, GA

Response Action Plan (Revision 001) Supplement 1

Removal Action Implementation Plan

8th and Plutus Streets Pottery Site Chester, WV

Docket No. CERC-03-2004-0255DC

Submitted To

United States Environmental Protection Agency
Region III
Wheeling Office
Wheeling, West Virginia

Prepared By

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January 2006
Document Number 10533-012-700

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1.0 INTRODUCTION

1.1 Background

On September 30, 2004, an Administrative Order by Consent for Removal Response Action (Consent Order) was entered into between Newell Holdings Delaware, Inc. (Newell) and the United States Environmental Protection Agency (EPA) (Docket No. CERC-03-2004-0255DC). The subject of the Consent Order is the property located at 8th Street and Plutus Avenue, Chester, West Virginia, (Site) which is the location of a former pottery manufacturing facility operated by Taylor, Smith, and Taylor, and later, Anchor Hocking Corporation.

The Site is defined for the purposes of this Plan as that area generally bounded on the north by the Ohio River; on the east by 8th Street; on the south by Mark's Run, an unnamed tributary to Mark's Run, and a fence line along an abandoned railroad right of way and then commercial/retail establishments along Carolina Avenue; and to the west by Hancock County (West Virginia) School District property (see Figure 1, USGS Site Location Map).

A Response Action Plan Revision 001 (RAP) was prepared by Newell and was approved by the EPA on March 29, 2005. The RAP provided a full description of the Site and its associated physical features; summarized past sampling activities at the Site (conducted by parties other than Newell); described immediate tasks that were conducted at the Site by Newell associated with fencing and warning signs; and included a description of a proposed field-based program called the Extent of Contamination Study (ECS), which was designed to investigate soils and sediments at the Site for metals of concern and polychlorinated biphenyls (PCBs). The ECS also addressed selected piles of debris which were located within the buildings on the Site. Notwithstanding any other sentence in this section of the report or any provision in the ECS to the contrary, those buildings which have been or are currently being leased and/or utilized by the property owner were excluded from the ECS (see Section 2.2). The RAP also included a site-specific Health and Safety Plan (HASP) and Quality Assurance Project Plan (QAPP) to guide the performance of the ECS as well as a response action implementation schedule and proposed Removal Action Implementation Plan (Plan) outline.

The RAP was amended on September 27, 2005 to identify the necessity of and proposed approach for additional soil characterization along the western boundary of the Site (on property to the west of the West Virginia Department of Transportation (WVDOT) right of way). This additional investigation was necessary to further delineate selected metals in soil in that area.

The amendment was approved on November 14, 2005 and the work was conducted in the field on November 25, 2005.

This Plan is the second document prepared in response to the Consent Order. The results of the investigations generally described above, and described in greater detail below, as well as the resultant proposed approach to remediation at the Site, are presented in this Plan.

1.2 Site Description and Historical Use

1.2.1 Site Description

The Site is located at 8th Street and Plutus Avenue in Chester, West Virginia. Figure 2 is a March 2003 aerial photograph of the Site and the surrounding area. The Site consists of approximately 11 acres, including the former pottery manufacturing building, and is bounded on the north by the Ohio River, the east by 8th Street, the west by the Marks Run "flood plain", and on the south by the facility fence line which separates the property from an abandoned railroad right of way which parallels Carolina Avenue. Ceramic shards and ceramic debris currently extend into the U.S. Route 30 right of way, in an area measuring about 500 feet long by 50 feet wide, which is approximately 0.6 acres. The Site is covered by buildings and small trees and brush with steep topographic relief on three sides. The slope towards the River to the north is very steep and tree-covered. The slope towards U.S. Route 30 to the west is steep but "benched" mid-slope. The slope towards Carolina Avenue to the south is variable and tapers to the east to grade at 8th Street.

The prominent physical feature of the Site is the former pottery manufacturing building, which dominates the Site with a 6-acre footprint, including an inner "courtyard" area containing three electric transformers on the ground and three former pole-mounted transformers, a smoke stack, water tower and covered former raw material delivery bay. The building is essentially of steel, block, and wood construction. Several out-buildings/sheds, currently used as storage facilities/garages. are also located on the Site. As previously described, the main building is in disrepair and a number of areas of the roof and floor have collapsed. Other major physical features associated with the facility are pottery kilns and furnaces, an elevated water storage tank, six silos, and a stack. One-half of the 20 feet by 100 feet former office building, located to the north of the front gate of the facility along 8th Street at Plutus Avenue, is reportedly occupied by full time residents. In addition, the property owner rents two garage-type buildings on-site to others for storage purposes. No building plans or other records for the former pottery manufacturing building were found.

Another significant physical feature on the Site is a former oil well that is currently an active gas production well, reportedly owned by G.O.W. Resources. The well is located about 40 feet to the west of the main building. The gas line associated with this well runs in a southerly, then easterly direction, parallel to the top of the slope on Site. It reportedly terminates at a small block structure to the south of the on-Site residence on 8th Street adjacent to the front entrance gate of the facility. The gas line is exposed in many locations on the Site. ENSR contacted Mr. Rusty Smith of G.O.W. Resources, who indicated that the gas line route is not mapped. A private utility locator was contracted to locate the buried portions of the gas line in the field.

The six red above ground storage tanks (AST's) that appear in the 1997 aerial photograph are no longer on Site.

1.2.2 Historical Use

Pottery manufacturing was historically prevalent in Chester, WV and the surrounding region. Two pottery manufacturing facilities operated in the area in addition to the former operation at the Site, including one facility that is currently active - The Homer Laughlin China Company. The Homer Laughlin China Company operates a facility along Fiesta Drive in Chester, WV, approximately 2.2 miles west of the Site. A second pottery facility, Edwin M. Knowles China Company, which later became Harker Pottery Company, operated a facility approximately 0.3 miles east of the Site. The exact dates of pottery manufacturing at this latter location are unknown; however, the facility was in operation at the turn of the century (by 1902) and the buildings were demolished between 1971 and 1978.

As noted, ceramic pottery was previously manufactured at the Site. The facility was operational between approximately 1900 and approximately 1982, and several phases of construction/facility expansion are evident. Based on information contained in Sanborn Fire Insurance maps dated 1902, 1907, 1910, 1923 and 1942 as well as historical topographic maps dated 1960, 1971, 1978, 1985 and 1996, the first known structures at the Site consisted of a portion of the main manufacturing building along 8th Street. The manufacturing building footprint expanded significantly to the west and north in the 1923 Sanborn Map, and was essentially identical to the current configuration in the 1942 Sanborn Map. Significant changes from the 1942 building layout to current conditions include construction of the office/residence building, clay silos, and building adjacent (south) of the silos and garages. The 1978 topographic map shows the Route 30 Bridge under construction. The topography on and adjacent to the Site on the topographic maps is essentially the same in each of the topographic maps reviewed (i.e., 1960 to 1996 maps).

Historical ownership and use at the Site, in addition to Anchor Hocking Corporation from 1973 to 1982, included Taylor, Smith and Lee Pottery from approximately 1900 to 1907, and Taylor, Smith and Taylor Company from approximately 1907 to 1972. The facility was closed by Anchor Hocking in 1982 and then sold to Hans F. Dietz in 1984. Mr. Dietz's parents (Marian and Robert Dietz) and Jan and Primo DiCarlo inherited the property in May 1989. The property was subsequently sold to Rock Springs Enterprises, Inc. in November 1989. The property was sub-divided into three parcels in February 2002. Two of the parcels are currently owned by Hans Dietz Apartments, L.P. The garage buildings located in the southeastern portion of the Site were formerly used by Mr. Hans Dietz in connection with a barge-cleaning business and are currently being rented.

1.2.3 Current Status

Pottery manufacturing is no longer conducted at the property. The majority of the property consists of either vacant land or the deteriorated former manufacturing building. The former office in the southeast portion of the site is currently used as a residence, and two garage buildings on the Site are being utilized for storage. No plans have been filed for redevelopment of the property.

1.3 Progress to Date

Section 8.3 of the Consent Order identifies specific items to be addressed by Newell in relation to the Site. The removal action items identified in Section 8.3 may be categorized as:

- Immediate action items, such as fencing and signs, to restrict access to the facility (8.3a, b, and c);
- Investigation phase items, including conducting an ECS for lead, other metals, and PCBs (8.3e, f, and l);
- Contamination removal action phase items (8.3 d,g,h,i,j,k);
- Post- removal action phase items (8.3o); and,
- Health & Safety and administrative items including preparation of a site-specific Health & Safety Plan (HASP), a facility safety evaluation, and obtaining a Hazardous Waste Generator Identification Number (8.3m and n).

Table 1 updates the information presented in the RAP in terms of these activities at the Site as enumerated in the Consent Order (a copy of the Consent Order is contained in Appendix A). As reported in the RAP, the facility perimeter fence has been repaired and new gates in the front and rear of the facility have been installed. Fencing has also been installed to separate the tenant rear ingress/egress at the former office building currently being used for residential purposes and "No Trespassing" signage has been installed around the perimeter. A Site-specific HASP has been prepared and a facility safety evaluation has been conducted (see Section 1.4, below). A

Hazardous Waste Generator Identification Number has been obtained for the facility (WVR000511790). The ECS has been completed and the results are reported in Section 2.0 of this Plan. The proposed approach to the removal action and post-removal action phases of the project are presented in Section 3.0 and 4.0 of this Plan.

1.4 Structural Evaluation of the Facility

Paragraph 8.3.m of the Consent Order identifies the need for a structural assessment of the on-Site structures which are subject to the Consent Order. The former manufacturing building covers approximately 6 acres and is in a severely deteriorated state. Many roof sections have collapsed into the structure, which in turn has led to further interior damage due to the physical collapses themselves as well as subsequent water damage. Most of the floors in the facility are constructed of wood beams, joists, and flooring, and most of these floors are decayed or otherwise in disrepair. Portions of stairs have collapsed, and there is evidence of past fires inside the building. Most skylights and windows have been broken out, and broken glass litters the floor. Portions of exterior masonry walls and parapets have collapsed.

Newell commissioned a condition assessment study of the building with the objectives of: 1) developing a floor plan for the facility for subsequent navigation during inspection and sampling; and 2) identifying those areas of the building that are unsafe to enter. This study was conducted during the period December 2004 through February 2005 by Whitney, Bailey, Cox, & Magnani, Consulting Engineers, Pittsburgh, PA. The results of the study are contained in Appendix B.

Areas of the building interior were categorized in the study as either: 1) access not advisable due to condition of floor or roof framing above, or floor below; or 2) access is permitted. The drawings indicate that the majority of the building should not be accessed due to the deteriorated nature of the structure, and some portions of the building were judged to be extremely unstable. The study noted the defects identified above and also noted additional physical hazards, such as basement foundation slabs with holes penetrating the entire thickness, failed wooden beams, and unbraced masonry walls. The condition of the facility has been documented in 48 photographs which are contained within Appendix B.

The areas of the building that were deemed to be safe to enter were investigated as described in the following section of this Plan. Areas that were unsafe to enter were observed from safe areas.

1.5 Objective of This Plan

It is the intent of this Plan to describe the field activities that were undertaken by Newell's contractors and subcontractors during the Summer and Fall of 2005 to investigate and determine the extent of contamination of lead and other metals and PCBs at the Site. This Plan also describes the methods and materials proposed to be used by Newell in implementing the removal action at the Site. This Plan is organized in the following manner:

- Section 2 of this Plan describes the scope of the ECS that was undertaken and presents the results of the field investigations.

- Section 3 of this Plan presents the remediation objectives and a site-specific risk assessment for contaminants and exposures of concern, resulting in the identification of remediation goals for the Site. This Section also identifies the approach to remediation used by Newell to delineate the removal action activities for the Site.

- Section 4 of this Plan identifies the proposed removal actions to be undertaken at the Site, as well as a schedule for the remediation.

- Section 5 contains a listing of references used in this Plan.

2.0 EXTENT OF CONTAMINATION STUDY

2.1 Objectives of the ECS

An ECS was conducted between April 19 and May 27, 2005. The ECS was performed in general accordance with the RAP Revision 001. Certain exceptions were made in consultation and general agreement with EPA field representatives. The primary objectives of the ECS were to:

- Delineate the nature and extent of adversely impacted soil;
- Identify potentially impacted soil and debris within the former manufacturing building, including the contents of the silos and the PCB content of the oil contained in the transformers at the facility;
- Provide data of sufficient quantity and quality to evaluate potential risk using both field measurements and confirmatory laboratory analysis; and,
- Provide sufficient information to prepare and implement a Removal Action Implementation Plan (Plan) for the Site.

2.2 ECS Scope

The ECS consisted of evaluating the concentrations of selected metals (antimony, arsenic, barium, cadmium, cobalt, total chromium, copper, lead, nickel and zinc) and PCBs in soil, and selected metals in sediment in the Study Area as shown in Figure 3. Figure 3 also shows the buildings that were excluded from ECS based upon their current occupation/use by the owner and/or tenants. Given the analytical results from previous DEP and EPA sampling efforts, surface water was not impacted from the Site and did not require further evaluation.

2.2.1 Soil Investigation

The primary objectives of the investigation in the exterior areas (areas outside of the buildings and inside the study area boundary) were: 1) to delineate the horizontal and vertical extent of adversely impacted soil; and, 2) to delineate the extent of ceramic debris present at the facility. These objectives were accomplished by: 1) systematically sampling and analyzing soil samples for metals in the field using a portable x-ray fluorescence analyzer (XRF) (and in addition, analyzing selected samples in the field for PCB using portable field screening kits); and, 2) installing borings and test pits in the ceramic shard material to determine its depth and extent.

The soil sampling program involved a systematic stratified sampling approach on a grid to yield a non-biased, statistically defensible sampling program. ENSR implemented a rigorous quality assurance/quality control (QA/QC) program to meet the program objectives to ensure that the XRF data can be used for quantitative characterization purposes. Specific QA/QC procedures are described in the EPA-approved QAPP.

Initially, ENSR established a 50-foot grid across the exterior areas of the Site. The grid nodes (i.e., sample locations) were marked with flags and wooden stakes and recorded using a portable GPS unit. The actual sampling locations are presented on Figure 3. Consistent with the RAP, ENSR altered the sampling locations in certain locations due to access restrictions resulting from buildings, foundations, topography, utilities or other structures. In addition, ENSR expanded the grid (i.e., added sampling locations) to the southwest and southeast in an effort to complete the delineation of lead in soil and eliminated pre-designated sampling points along the northern property boundary due to the presence of rip-rap in the selected locations at the toe of the slope. ENSR discussed each modification of the sampling locations with EPA representatives and obtained their concurrence.

After establishing the sampling grid, soil samples were collected at several discrete depths during the on-site soil delineation program. Soil samples were collected using one of three different techniques: direct push technology, test pits excavated by a track hoe, or hand tools (e.g., hand auger, pick and shovel), depending on the topography in the vicinity of the sample location and other related access issues.

Detailed sample collection and decontamination methodologies are described in the EPA-approved RAP. In general, ENSR used dedicated or disposable sampling equipment to minimize the potential for cross-contamination; collected continuous soil samples for descriptive purposes and collected soil samples for analysis at depths of 0 to 2 feet, 2 to 4 feet, 4 to 6 feet, and 6 to 8 feet. Where hand tools needed to be used, sample depths were generally 0 to 2 and 2 to 4 feet. In areas where the sample location was covered by ceramic debris, the boring or excavation was extended until ENSR encountered "natural soil" and ENSR collected two to four samples beneath the ceramic debris in what was interpreted as the natural soil. Sampling and analysis of ceramic debris was not a part of this program.

ENSR analyzed these samples sequentially by depth in the field using XRF technology until the extent of lead at concentrations equal to or greater than 400 mg/kg was defined, with a few exceptions. Excluding QA/QC samples, 19% (83 samples) of the samples were shipped to an off-site laboratory for confirmation metals analysis. The confirmation samples were analyzed for lead, antimony, arsenic, barium, cadmium, cobalt, total chromium, copper, nickel and zinc. The confirmation samples were generally selected based on the XRF field analyses and as outlined below:

- Approximately 24% of the confirmation samples were selected from XRF samples that exhibit lead results in the 0 to 200 mg/kg range;

- Approximately 34% of the confirmation samples were selected from XRF samples that exhibit lead results in the 201 to 500 mg/kg ranges; and,

- Approximately 42% of the confirmation samples were selected from XRF samples that exhibit lead results greater than 501 mg/kg.

The proportionate number of samples sent to the laboratory for confirmation purposes deviated from the anticipated percentages identified in the work plan (i.e., 20%, 60% and 20%, respectively). This deviation from the plan occurred because only 10% of the collected samples contained lead at concentrations between 201 mg/kg and 500 mg/kg. Approximately 50% of the samples contained lead at a concentration less than 200 mg/kg, and 40% of the samples contained lead at a concentration greater than 501 mg/kg. In addition, the samples collected during the November 2005 supplemental investigation along Row C (samples C-8 through C-16) were not analyzed with the XRF; all of these samples were analyzed in the laboratory. Regardless, the data (both the XRF and laboratory data) were independently validated, correction factors were developed for the XRF data, and there were no impacts on the usability or interpretation of the data.

In addition, selected samples were analyzed in the field for PCBs using Dexsil PCB field screening kits. The PCB sampling locations were focused in the vicinity of the transformers. ENSR sampled other areas of the site in a systematic approach (Figure 3). Approximately 12% of the samples were shipped to an off-site laboratory for confirmation PCB analysis.

2.2.2 Sediment Investigation

The objective of the sediment sampling investigation was to characterize selected metals content in the sediment in Marks Run within the study area and along the northern edge of the property and to delineate lead to a characterization guideline of less than 400 mg/kg.

The sediment sampling effort consisted of collecting samples at 12 locations in Marks Run and 4 locations along the northern property boundary (Figure 3). Of the samples collected in Marks Run and its unnamed tributary, ten sediment samples were collected at locations adjacent to the Site (SDMR-01 to SDMR-10) and two sediment samples were collected from upstream locations (SDMR-11 and SDMR-12). Of the four sediment samples collected along the northern property boundary, two were collected adjacent to the Site, one sample was collected at the upstream property boundary, and one sample was collected approximately 1,500 feet upstream of the Site. The second upstream sample identified in the ECS approximately 500 feet from the Site could not be collected due to extensive rip-rap in the area. ENSR generally collected sediment samples at each location in Marks Run and the northern property boundary from the 2 to 4-inch interval. ENSR also collected a second sediment sample at two locations along the northern property boundary at depths ranging from 4 to 11 inches.

2.2.3 Drum Survey

The objective of the drum survey was to identify abandoned drums on the site and to assess the origin/ownership of the drums. ENSR performed the survey by visually inspecting accessible areas, and if drums were present, noting the size of, condition of, contents in and markings on the drums.

2.2.4 Transformer Investigation

The transformer investigation consisted of identifying, sampling and analyzing transformers located on the Site. The dielectric fluid in three pole-mounted transformers (which were removed from the poles and placed on polyethylene sheeting on the ground) and three pad-mounted transformers was collected and analyzed by the laboratory for PCBs.

2.2.5 Building and Other Materials Investigation

The objective of the investigation within the building was to determine whether impacted soil or abandoned hazardous materials are present therein. As proposed in the EPA-approved ECS, construction materials (e.g., wood, metal, and concrete debris) and former manufacturing equipment, including kilns, furnaces, and molds, were not sampled. Soil and waste-like materials were characterized as part of the ECS.

Initially, a structural engineer conducted an evaluation to determine which areas of the buildings were structurally sound and safe to enter (see Section 1.3). In the areas of the building that were identified as unsafe, visual observations were made from safe areas and judgments regarding the need to sample materials, and location-specific techniques to gather the material, were made in the field and discussed with EPA oversight personnel.

The investigation inside the building was accomplished by visually surveying the building interior and by sampling identifiable piles (i.e., significant accumulations) of debris and waste encountered in the areas that were safely accessible. The materials sampled were analyzed for metals in the field using a portable XRF. In addition, selected materials were sampled and analyzed for PCBs.

The field team conducted a visual survey of the building interior. The survey consisted of the following:

- A visual description of the room or arèa of the building and identification of the room or area on a site map;

- Identification and description of the soil, debris, and drums encountered;

- Estimation of the quantity of material present, if any; and,

- Collection of representative samples for field analysis.

ENSR collected samples from suspected waste material at 8 locations and analyzed them in the laboratory.

2.3 Results of ECS

ENSR conducted the soil investigation described in the RAP during April and May 2005 and RAP Supplemental Investigation in November 2005. The ENSR field crew conducted intrusive sampling at 177 locations across the Site (Figure 3). Soil borings were drilled at 118 locations, test pits were excavated at 6 locations and soil and sediment samples were collected using hand tools at approximately 53 locations. Soil samples were analyzed in the field for metals using an XRF meter, screened in the field for PCBs and analyzed in a laboratory for metals and PCBs.

A total of 439 soil samples (including QA/QC samples) were analyzed in the field using an XRF (Table 2). As identified in Section 2.2.1, STL Laboratories in Pittsburgh, PA analyzed 83 soil samples (excluding QA/QC samples) for confirmation purposes. The laboratory analytical reports are presented in Appendix D. Depending upon the XRF results, the sample collection methodology, and conditions encountered during the investigation, soil samples from 1 to 5 discrete depths were analyzed in the field from each location. There were some exceptions as accounted for in the RAP. ENSR discussed deviations from the Plan with EPA representatives to ensure the objectives of the program were achieved.

To ensure that the data can be used for decision-making purposes, ENSR validated both the laboratory data and the XRF data. Data validation documentation is presented in Appendix E. Excluding selected antimony results, as identified on Table 3, these data have been determined to be suitable for use in decision-making as a result of the data validation process.

ENSR also performed an evaluation that compared the XRF data to the laboratory data in order to quantify the relationship between the XRF results and the laboratory results and to develop a correction factor for the XRF data. The corrected XRF data are representative of concentrations that would be expected if the samples had been analyzed by the laboratory and to determine the linear ranges where the correction factors could be used. ENSR compared XRF and laboratory results from 91 soil samples (83 samples and 8 duplicate samples). The evaluation consisted of performing a linear regression of the validated sample results for each analytical method. Correlation coefficients were calculated and the correction factor was defined as the slope of the regression line.

The evaluation included data for antimony, arsenic, barium, cadmium, chromium, cobalt, copper, lead, nickel, and zinc. Correction factors could not be developed for antimony, arsenic, cadmium, chromium, cobalt, and nickel due to the lack of detected concentrations. XRF and laboratory barium results did not correlate well; therefore, a correction factor was not developed. Correction factors were developed for copper, lead, and zinc. The XRF and laboratory data correlated well for copper, lead and zinc with a correlation coefficient ranging from 85% to 97%. The correction factors developed for copper, lead and zinc were 1.15, 0.9 and 0.93, respectively. The linear range for the correction factors are:

- Copper 165.2 to 655.2 mg/kg
- Lead 38.2 to 2859.2 mg/kg
- Zinc 106.5 to 639.6 mg/kg

The XRF results are presented on Table 2, the laboratory results are presented on Table 3 and the lead results as well as the sample depths are presented on Figure 4. Lead was the only metal that exceeded its screening level (i.e., 400 mg/kg) in any of the samples analyzed by the XRF, and lead and arsenic were the only metals that exceeded their screening levels (400 mg/kg and 19 mg/kg, respectively) in any of the samples analyzed by the laboratory.

2.3.1 Soil Investigation

Because lead and to a lesser extent, arsenic, were the only metals to exceed a screening level, this section focuses on these two metals and the PCB results. The elevated concentrations of lead and arsenic do not appear to be collocated. Elevated arsenic concentrations appear to be more frequent in the southeastern portion of the Site in the vicinity of the rail spurs, where lead concentrations are generally lower and where pottery shards are less frequent. These empirical data suggest that arsenic may not be attributed to the former pottery manufacturing activities at the Site.

2.3.1.1 Lead Results in Soil

In general, lead concentrations in surface soil across the former manufacturing property exceed 400 mg/kg. The highest concentrations of lead were almost exclusively detected along the western portion of the former manufacturing property between rows G and L on the sampling grid. This area coincides with the occurrence of numerous areas of pottery shards. With a few exceptions, the extent of lead in surface soil at a concentration of 400 mg/kg or greater has been effectively defined to the north, west and south and east.

The exceptions to delineating lead concentrations to less than 400 mg/kg were discussed in the field with EPA representatives and the rationale for not collecting additional samples is discussed herein. There were a few locations along the southwestern portion of the Site (L-17, K-17, J-17 H-17, and F-17), along the northern portion of the Site (K-2, M-2, N-2, O-2, and P-2) and along the southern portion of the Site (C-8) that contain lead at a concentration greater than 400 mg/kg. The sample locations along the southwestern portion of the Site are along a relatively low area of the Site and a steep hillside is located directly south. Pottery shards, which are a likely source of elevated lead, were observed in the low-lying areas and not along the hillside. ENSR, in consultation with and concurrence of EPA representatives, did not investigate soil on the hillside or former rail right-of-way. The sample locations along the northern portion of the Site are along a steep hillside and the sampling efforts were hampered by the presence of rip-rap in this area. The rip-rap covered the soil and prohibited access for sample collection. As discussed in Section 2.3.2, two sediment samples, collected along the northern property boundary (SDOH-4 and SDOH-5), did not contain lead at concentrations greater than 400 mg/kg. The single sample (C-8) along the western portion of the Site is located adjacent to a steep hillside was collected during the Supplemental Investigation conducted in November 2005. The slope west of Row C contains a significant amount of slag-like material and there are abandoned appliances in the vicinity of sample C-8, either of which could potentially contribute to the elevated lead concentration.

Lead concentrations in “natural” soil were generally less than 400 mg/kg. At several locations where the top portion of the “natural” soil was in direct contact with overlying pottery debris, the lead concentration was elevated, however, the lead concentrations decreased significantly with depth where sampled. ENSR noted in the field that pottery shards occasionally collapsed into the borehole and may have resulted in elevated lead concentrations in the underlying natural soil. This empirical information suggests that the lead is not highly mobile in the environment.

2.3.1.2 Arsenic Results in Soil

Of the 83 soil samples (excluding QA/QC samples) analyzed by the laboratory for arsenic, 63 soil samples contained arsenic at concentrations less than its screening level of 19 mg/kg. Only 15 surface soil samples contained arsenic at a concentration greater than its screening level and only

5 subsurface soil samples contained arsenic at a concentration greater than its screening level (Table 3). The majority of the elevated arsenic concentrations in surface soil occur in the southeastern portion of the Site.

2.3.1.3 PCB Results in Soil

Selected soil samples were analyzed in the field for PCBs using field screening kits (Dexsil PCB screening kits) and selected samples were sent to the laboratory for PCB analysis by GC/MS. The PCB sampling locations were focused in the vicinity of the transformers. ENSR sampled other areas of the site in a systematic approach (Figure 3). Approximately 12% of the samples were shipped to an off-site laboratory for confirmation PCB analysis.

The PCB field screening results are presented on Table 4 and the laboratory results are presented on Table 5. ENSR analyzed 90 samples from 38 locations across the Site using field screening techniques. Of the 90 soil samples analyzed using field screening kits, seven samples (excluding duplicates and replicates) contained PCBs at concentrations greater than the screening level of 10 mg/kg (G-2B, I-13B, K-2A, M-16B, P-12B, R-14B and S-17A). The samples that contained PCBs at a concentration greater than 10 mg/kg appear to occur randomly across the Site. None of the 11 samples analyzed by the laboratory contained PCBs at a concentration greater than the screening level.

Laboratory samples were analyzed at three locations where the field screening kits indicated a PCB concentration greater than 10 mg/kg and the laboratory samples results were at least an order of magnitude less than the field screening kit results. Samples G-2B, K-2A and M-16B had field screening results of 11.7 mg/kg, 11.5 mg/kg and 24.3 mg/kg, while the laboratory analytical results were 0.079 mg/kg, 3.1 mg/kg and not detected (reporting limit of 0.039 mg/kg), respectively. Therefore, as noted in the operations manual for the Dexsil PCB screening kit, the kit quantifies organic chlorine and assumes that all of the organic chlorine is a result of the presence of PCBs. The presence of organic chlorinated compounds in the sample will result in a high bias result for PCBs. The comparison of the field and laboratory data as well as the assumption that all organic chlorine is originating from PCBs suggest that the field screening results overestimate the PCB concentration in soil samples. The test method (Method 9078, "Screening Test Method for Polychlorinated Biphenyls") indicates that the rate of false negatives on studies presented in the method was 1.4% while the false positive rate was 7.5%. As discussed in Section 2.3.4, the samples of dielectric fluid from the 6 transformers located on the Site did not contain detectable concentrations of PCBs. In summary, soil at the Site does not appear to be adversely impacted with PCBs.

2.3.1.4 Physical Description of Soil

In addition to collecting samples for analysis, ENSR described the lithology at each sampling location. The boring logs for each sampling location are presented in Appendix C. ENSR used this information to estimate the volume of pottery debris present, generate cross-sections and provide an overview of surface and subsurface conditions.

As shown on Figure 5, cross-sections were developed along 4 “lines” to provide representative coverage across the Site. The cross-sections are shown on Figures 6 through 9. For interpretive purposes, the “soil” encountered has been classified into three primary categories; natural soil consisting primarily of silty clay, pottery shard/soil-pottery fill, and soil fill with some amount of pottery. The boring logs in Appendix C contain more descriptive interpretations of the subsurface materials encountered.

Surficial Soil

Excluding portions of the western hillside where pottery shards are exposed at the surface, the surface material at the Site consists of soil fill (composed of a mixture of gravel, sand, silt, and clay) with varying amounts of pottery. A trace amount of pottery is present at or near the surface across most of the Site with larger amounts on the former manufacturing property and little to no pottery around the perimeter of the Site. The borings located west of Marks Run along the hillside also contained slag-like material, presumably from a sheet tin plate company that had been located west of Marks Run in the early 1900s based on a Sanborn map dated 1907. In fact, the hillside west of Marks Run is composed largely of slag, which is not associated with pottery manufacturing. Surficial soil in the eastern portion of the Site generally consists of topsoil with little to no pottery. Surficial soil south of the Site consists of various amounts of fill presumably placed to enable development along Carolina Avenue and the former rail line.

The surficial soil fill material generally contained lead at concentrations between 400 mg/kg and 1,000 mg/kg across most of the former manufacturing property and beneath the U.S. Route 30 Bridge. The lead concentrations in surficial soil beyond the former manufacturing property and the U.S. Route 30 Bridge generally were less than 400 mg/kg.

Pottery Shards/Soil-Pottery Fill

In the western and southwestern portion of the former manufacturing facility, pottery shards/soil pottery fill is present. The pottery shards/soil-pottery fill is present at the surface along the western hillside and from 1 to 3 feet beneath the surface in the southwestern portion of the former manufacturing facility. Thin lenses/layers of pottery were also observed in some locations in the bridge right-of-way at a depth of 2 to 3 feet (e.g., borings G-04, G-07, F-07) beneath the surface.

The thickness of pottery shards/soil-pottery fill along the western hillside typically ranged form 25 to 35 feet thick. Based on test pits (i.e., test pits I-06 and I-08) that were excavated adjacent to the former manufacturing building, a portion of the manufacturing building appears to have been constructed over pottery shards/soil-pottery fill.

In general, the material consisting primarily of pottery shards/soil-pottery fill contained elevated concentrations (i.e., greater than 2,000 mg/kg) of lead. This material is primarily present along the western hillside between the former manufacturing building and the U.S. Route 30 right-of-way and in the southwest portion of the Site between the former manufacturing building and the unnamed tributary to Marks Run. An isopleth map showing the approximate thickness of the pottery shard fill and soil-pottery fill layer is presented in Figure 10.

Based on the information in Figure 10, the total area of the Site not covered by buildings that contains primarily pottery shards/soil-pottery fill is approximately 232,900 $ft.^2$. Assuming that the average thickness of the pottery shards/soil-pottery fill is the midpoint range that is identified on Figure 10 (i.e., 4.5 ft., 14.5 ft., 24.5 ft. and 32 ft.) the approximate volume of pottery shards/soil-pottery fill present at the Site is 117,800 yd^3. The pottery shards/soil-pottery fill is covered by soil fill in all areas of the Site except portions of the western hillside.

Natural Soil

Natural soil is present beneath the fill material. The natural soil across the Site generally consists of silt and clay with some sand and gravel layers, particularly near Marks Runs and the northern property boundary.

In general, where natural soil was encountered, the concentration of lead was less than 400 mg/kg. Approximately ten percent of the soil samples that were collected from the natural soil did contain lead concentrations greater than 400 mg/kg; however, the vast majority of these samples (80 percent) were located directly beneath fill material that contained pottery shards.

2.3.2 Sediment Investigation Results

ENSR collected sediment samples from Marks Runs (and an unnamed tributary to Marks Run) and along the northern property boundary (Figure 3) to determine whether this media had been adversely impacted by former manufacturing operations at the Site. The following subsections present the analytical results of the sampling effort. As with the soil analytical results, only lead was detected at a concentration greater than its screening level (Table 6).

2.3.2.1 Lead Results in Marks Run Sediment

Twelve sediment samples were collected within Marks Run and an unnamed tributary to Marks Run and analyzed using the XRF. The sediment consisted primarily of silt, sand and gravel. There was no significant difference in the physical composition of the sediment within the top 6 to 8 inches; therefore, only one sample was collected at each location. The sediment sample locations are shown on Figure 3 and the XRF results are presented in Table 6. The lead results and sample intervals are also shown on Figure 4. Of the 12 sediment samples from Marks Run only one sample (SDMR06A) contained lead at a concentration greater than 400 mg/kg. SDMR06A contained lead at a concentration of 583 mg/kg, and the sample was located directly down stream of the "access road crossing" within Marks Run. Given that the lead concentration in the sediment samples upstream and downstream of SDMR06A are less than 400 mg/kg, the elevated concentration may be attributed to the use of the road crossing in this immediate area.

In summary, sediment in Marks Run generally does not appear to be adversely impacted with lead from the Site. There was one exception, SDMR06A, which contained lead at a concentration of 583 mg/kg; however, lead impacts in the sediment are not widespread.

2.3.2.2 Lead Results Along Northern Property Boundary

Six sediment samples were collected from 4 locations along the northern property boundary and analyzed using the XRF. The sediment consisted primarily of sand, silt and gravel with many sections of the sampling area covered with rip-rap. Sediment samples could not be collected at one of the upstream locations (i.e., SDOH02) due to the presence of rip-rap along the river bank and SDOH01 was collected approximately 1,500 feet upstream of 8th Street. Sediment sample SDOH03 was collected near the upstream portion of the Site, SDOH04 was collected at the approximate mid point of the Site and SDOH05 was collected near the downstream portion of the Site.

The lead concentrations in SDOH01, SDOH04 and SDOH05 ranged from 35 mg/kg to 113 mg/kg. The lead concentration in sample SDOH03, which was collected at the upstream property boundary, was 1,314 mg/kg. The one sediment sample from this area that was greater than the screening concentration of 400 mg/kg, is located at along the upstream portion of the Site and the elevated lead concentration may be attributed to some source upstream of the Site, such as the former Edwin M. Knowles pottery facility. Regardless, the single elevated detection of lead along the northern portion of the property (compared to other locations adjacent to the Site) appears to be a localized occurrence.

In summary, samples collected in the area along the northern property boundary generally do not appear to be adversely impacted with lead from the Site. One sample, SDOH03A contained lead at a concentration of 1,314 mg/kg; however, this sample was collected along an upstream portion of the Site and lead concentrations in samples adjacent to and downstream of the Site are not elevated.

2.3.3 Drum Survey

During the kick-off meeting and Site walk through the former manufacturing building to identify potential samples locations with the building, ENSR observed groupings of drums at three general locations on the Site and several single drums scattered within the buildings. All but one of the single drums scattered within the buildings were empty. A black granular material in the one drum was sampled (IB-3). The groupings of drums did not appear to be associated with former pottery manufacturing at the Site. ENSR subsequently conducted a detailed drum survey on June 23, 2005. The approximate drum locations observed are presented on Figures 11 and 12.

2.3.3.1 Drums Not Associated with Former Pottery Manufacturing

Excluding the one single drum, the drums encountered did not appear to be associated with the former pottery manufacturing activities at the Site. There were three groups of drums located at the Site (Figures 11 and 12). Few drums in the three groupings of drums contained markings that identified ownership; however, the weight of evidence indicates that neither the drums nor their contents were associated with former pottery manufacturing. This weight of evidence consists of the following:

- A Trip Report completed by the WVDEP on October 21, 1998 indicated that "Mr. Dietz does not use the site but rents out some of the smaller buildings for storage of equipment and chemicals." The same trip report indicated that DTC Tank Cleaning leased a portion of the Site.

- The results of a "Windshield Assessment" conducted by the EPA on January 21, 1999 indicated that two on-site buildings were leased to other companies. The report also states that DTC Tank Cleaning reportedly stored raw materials and possibly wash out debris from the barge cleaning business. The other company(ies) were not named.

- A second Trip Report summarizing a sampling event conducted by the WVDEP on June 8, 2001 indicated that DTC Tank Cleaning was storing materials such as ferro-chrome, nickel cobalt and activated carbon on the Site. It is unclear if these materials were removed from the Site.

- In the Administrative Order (Appendix A), the EPA determined that two garage buildings were used by Hans Dietz in connection with a barge cleaning business that was operated at the Site. Additional documentation indicated that the garages were subsequently used "for a time" by an entity that purchased the barge cleaning business (presumably DTC Tank Cleaning).

- An automotive repair business, Saturn Power Brake Rebuilders, also operated on a portion of the Site in the mid-1980s. The exact area of the former manufacturing building that this business occupied is unclear; however, at a minimum, the business occupied a former office area along 8th Street, north of the current residence, and based on the presence of power brake assemblies, the courtyard between the office area and a portion of the adjoining former manufacturing building. There are numerous remnants of this former business including signage painted on the building wall, automotive parts, cancelled checks, and various other paper records.

- Small cylinders for compressed gas that are labeled "R-22" were located within the office area used by Saturn Power Brake Rebuilders as well as in the courtyard area. The presence of these cylinders in both locations indicates that the cylinders arrived at the Site during or after Saturn Power Brake Rebuilders occupied the buildings.

- According to Chris Dietz, certain drums (see Group 1 below) were reportedly moved from the garage that had been used as part of the barge cleaning business to the building adjacent to the silos to facilitate rental of the garage space.

Group 1. The first group of drums is located in an area inside of the former manufacturing building adjacent to the silos (Figure 11). There are 18 drums in this area, including overpack drums, 4 of which are empty. Hand written labels on most of the drums indicate that the contents are primarily oil/waste oil or styrene/styrene wash water. Based on conversations with Mr. Chris Dietz, these drums were purportedly generated by a former barge cleaning business that operated on the property.

Group 2. The second group of drums is located in the courtyard north of the residence in the area where Saturn Power Brake Rebuilders operated (Figure 12). There are 14 drums in this area, 2 of which are empty. Most of these drums are unlabelled or the labeling has worn off, but a few do indicate that the original contents were oil/hydraulic oil. A visual inspection of several of the drums indicates that the contents appear to be consistent with a waste oil-like material. Approximately 24 containers labeled "R-22" are located in this area and the former Saturn Power Brake Rebuilders office building. Additional automotive parts including power brake assemblies, automotive batteries and partially filled 1-gallon paint cans are also located in the former office building.

Group 3. The third group of drums is located south of a linear kiln inside of the former manufacturing building and adjacent to office area used by Saturn Power Brake Rebuilders (Figure 12). There are 41 drums in this area, 34 of which are empty. Of the seven drums that were not empty, one drum had a hand written label indicating that the drum contained "used oil". The contents of the remaining drums could not be determined based on labeling on the drums.

2.3.3.2 Drums Potentially Associated With Former Pottery Manufacturing

As previously mentioned, there were several single drums scattered within the buildings. All but one of the single drums scattered within the buildings were empty. The single drum contained a black granular material and was located in the southwest portion of the former manufacturing building.

Given that the material in this drum may have been associated with former pottery manufacturing the contents were sampled (IB-3).

2.3.4 Transformer Investigation

ENSR sampled and analyzed the dielectric fluids in the 6 transformers at the Site. The samples of fluid were analyzed for total PCBs using SW-846 Method 8082. The results indicated that none of the transformers contained measurable concentrations of PCBs. The analytical report for the transformer investigation is contained in Appendix D.

2.3.5 Interior Building Samples

ENSR identified eight areas/media within the former manufacturing building that may be associated with former pottery manufacturing and based on a request by EPA, ENSR also analyzed a sample of soil-like material in the building for PCBs (IB-8). Each sample was analyzed in the laboratory for TCLP metals, reactive cyanide, reactive sulfide, corrosivity (pH) and ignitability. The approximate sample locations are shown on Figure 4 and the analytical results are presented on Table 7. ENSR did not collect a sample at location IB-1, as there was no material to collect. ENSR originally planned to collect sample IB-1 in two subsurface concrete pits south of the silos; however the pits appeared to have been cleaned and only contained concrete and metal debris. The location, description and results of the remaining samples are described below.

Sample IB-2 was collected south of the silos and consisted of a wet clay-like material on the floor and some floating material in concrete pits. The estimated quantity is approximately 1 to 2 cubic yards. The analytical results indicate that this material contains lead at a concentration of 7.3 mg/l; all of the other parameters indicated concentrations that were less than the regulatory limits.

Sample IB-3 was collected near the south-central portion of the manufacturing building and consisted of a black granular material within and around a drum. The estimated quantity is one 55-gallon drum. The analytical results indicate that all of the parameters for this material were less than the regulatory limits.

Sample IB-4 was collected in the southwest portion of the former manufacturing building and consisted of a 3 bags of black granular material wet on the floor. The estimated quantity is one 55-gallon drum. The analytical results indicate that all of the parameters for this material were less than the regulatory limits.

Sample IB-5 was collected near the southwest portion of the manufacturing building and consisted of three small piles of tan to white granular material on the floor. The estimated quantity present is one to two 55-gallon drums. The analytical results indicate that all of the parameters for this material were less than the regulatory limits.

Sample IB-6 was collected adjacent to a rotary kiln in the west central portion of the former manufacturing building and consisted of a pinkish powdery material on the floor and in a metal trough. The estimated quantity is one to two 55-gallon drums. The analytical results indicate that this material contains lead at a concentration of 498 mg/l; all of the other parameters were less than the regulatory limits.

Sample IB-7 was collected near the north central portion of the former manufacturing building and consisted of 10 rolls or cylinders of a hard black material. The estimated quantity present is one 55-gallon drum. The analytical results indicate that all of the parameters for this material were less than the regulatory limits.

Sample IB-8 was collected at the request of EPA representatives and analyzed for PCBs in the field and consisted of a black soil-like material. The estimated quantity is one 55-gallon drum. The field screening results indicated that PCBs were present at 9.13 mg/kg, which is less than the screening level of 10 mg/kg.

A composite sample, designated "Silo", was collected from the material within the silos and generally consisted of a white to tan powdery clay-like material. Silos designated 4 and 7 were not sampled since the port was rusted closed at silo 4, and the pipe leading from silo 7 was damaged. The estimated quantity of material in the silos is 730 tons. This volume is based on a raw material inventory report from November 28, 1981 as stated in a letter dated January 7, 1984 from Anchor Hocking to Mr. R.D. Humphreys (apparently at the request of Mr. Hans Dietz). The material, capacity, and contents of each of the silos was reported as follows:

Silo	Material	Capacity	Approximate Inventory
#1	F.C. Clay	200 tons	128 tons
#2	D.F.F. Clay	200 tons	80 tons
#3	Spar	200 tons	68 tons
#4	Dark Ball	200 tons	68 tons
#5	Flint	200 tons	68 tons
#6a	Flint	100 tons	74 tons
#6b	Spar	100 tons	100 tons
#7a	D.F.F. Clay	100 tons	70 tons
#7b	Jackson Ball	100 tons	74 tons

The analytical results indicate that all of the parameters for this material were less than the regulatory limits.

3.0 DEVELOPMENT OF PROPOSED REMOVAL ACTION

3.1 Removal Action Objectives

"Appropriate" removal actions as listed in the CERCLA regulations (40 CFR Ch. 1 ss 300.415(e)) include (but are not limited to) the following:

(1) Fencing, signs, and other site controls;

(2) Drainage controls, such as run-on and run-off diversions;

(3) Stabilization of berms, dikes, etc.;

(4) Capping of contaminated soils or sludges;

(5) Using chemicals to retard the spread of a release;

(6) Excavation, consolidation, or removal of highly contaminated soils;

(7) Removal of drums, barrels, tanks, etc.;

(8) Containment, treatment, disposal, or incineration of hazardous materials; and,

(9) Provision of alternative water supply.

The Consent Order identifies "excavation and removal" as the preferred removal action for the Site (Section 8.3g). The Consent Order states that the following types of materials should be excavated and removed from the Site:

- Lead-contaminated surface soils, ceramic and other debris that test positive for concentrations of 400 ppm or higher;
- PCB contaminated surface soils with concentrations of 10 ppm or higher; and,
- Soils containing additional contaminants at or above the Site-specific Removal Action Guidelines.

Because the surficial 2 to 30 feet of material at the Site consists of intermixed layers of soil and ceramic debris, and both are pervasive at the Site with concentrations of lead exceeding 400 mg/kg, the quantities of contaminated soil, ceramic shards, and mixed soil and ceramics on Site deem it impracticable to excavate and remove. The Consent Order recognized the potential for this in section 8.3(i), stating, "Engineering controls will be used in lieu of excavation where the depth of contamination exceeds two feet, or if the total amount of contaminated soil at the Site exceeds 5000 cubic yards." Based upon the results of the ECS presented in Section 2, both of these criteria apply to the Site. Therefore, engineering controls will be used in lieu of excavation and removal as the remedial approach for the majority of the site, with the objective of preventing exposure to and migration of contaminated materials. Remedial goals for the engineering controls are discussed in the following section of this Plan. The one exception to this approach will be the "residential backyard" area of the Site that is bounded by the rear of the residence on 8th Street and several garages on Site.

3.2 Development of Risk-Based Site-Specific Remedial Goals

Site assessment investigations conducted to date have determined that lead and arsenic have impacted soil. It has further been determined that engineering controls will be utilized in order to accomplish the remedial objectives outlined in the Consent Order. In order to define a basis for development of the engineering controls, which will be protective of human health and which will ensure that the Site does not pose an unacceptable risk to the community, remedial goals (RGs) that account for site-specific land use have been developed for lead and arsenic in soil. The sequential development of the RGs is described in the following steps:

- Exposure Assessment
- Dose-Response Assessment
- Development of RG for Arsenic in Soil
- Development of RG for Lead in Soil

Each of these steps is described below.

3.2.1 Exposure Assessment

The purpose of the exposure assessment is to provide a quantitative estimate of the magnitude and frequency of potential exposure to lead and arsenic by potential human receptors at the Site. Potentially exposed individuals, and the pathways through which those individuals may be exposed to lead and arsenic, are identified based on the physical characteristics of the Site, as well as the current and reasonably foreseeable future uses of the Site and surrounding area. The extent of a receptor's exposure is estimated by constructing exposure scenarios that describe the potential pathways of exposure to lead and arsenic and the activities and behaviors of individuals that might lead to contact with these constituents in the environment.

3.2.1.1 Site Characteristics

The Site is bounded on the east by a residential area, on the north by the Ohio River, on the west by an elevated highway right of way, and on the south by commercial development, which is topographically above the Site. The former manufacturing area is fenced around its entire perimeter with six-foot barbed wire metal mesh fence with very limited access (only two access gates are present - front on 8th Street and rear at the right of way). Site access is further restricted by a very steep rise from the river on the north, and a steep rise to the commercial area to the south. Thus the Site is reasonably secure, with limited accessibility to the general public.

The Site is currently vacant with the exception of the former facility office location, composed of a single-story cinder block and brick structure along 8th Street, which is reportedly currently being utilized as a residence, and several garage structures which are reportedly leased out by the current owner and which are situated proximate to the residence. This occupied area of the Site is excluded from the discussion regarding RGs, since the soil containing lead at concentrations ≥ 400 mg/kg lead and/or ≥ 19 mg/kg arsenic in this area will be excavated and replaced (see the next section of this report). The remaining portions of the facility exhibit evidence of trespassers such as painted walls and litter; however, due to its deteriorated condition, most of the facility is unsafe to enter. It is anticipated that the Site will remain an inactive industrial facility for the reasonably foreseeable future.

3.2.1.2 Potential Receptors and Exposure Pathways

Based on the Site characteristics, in particular being an inactive industrial facility, it is expected that the most likely human receptor is a trespasser. While the Site is relatively isolated from the general public, it has been assumed for the purposes of RG development that a trespasser may come on to the facility property and potentially be exposed to lead and arsenic in soil. It is further assumed that the most likely trespassers at the site would be teenagers or young adults. For RG development it was conservatively assumed that a trespasser may come onto facility property as frequently as 1 day per week (equivalent to 52 days per year).

In general, the potential human exposure pathways to metals in soil include incidental ingestion, dermal contact, and inhalation of fugitive dust. However, as discussed in greater detail in Section 3.2.2, potential health risks associated with lead may not be assessed using the traditional methods of risk assessment. The model used by USEPA to assess the potential risks from lead considers only incidental ingestion of soil and dust.

The numerical exposure assumptions that describe potential teenage trespasser exposure to on-site soil for the development of a soil RG for arsenic are presented in Table 8.

3.2.2 Dose Response Assessment

For many constituents associated with known or potential noncarcinogenic health effects, it has been demonstrated that there is a threshold for these effects. It is conventionally assumed for all such constituents that there is a dose (represented numerically by a reference dose or RfD) below which no adverse effect occurs or, conversely, above which an adverse effect may be seen. For constituents with known or suspected carcinogenic effects, the underlying default assumption for regulatory risk assessment is that there is no threshold for effects. Thus, every dose, no matter how small, is assumed to pose some finite level of risk. The dose-response relationship of potential carcinogens is represented numerically by a cancer slope factor (CSF). The dose-response assessments for arsenic and lead are presented below.

Arsenic

Dose-response values are available for inhalation and oral exposures. Unadjusted oral dose-response values were used to evaluate dermal exposures, as recommended by USEPA (2004). Sources of the published dose-response values to derive the RGs include USEPA's Integrated Risk Information System (IRIS) (USEPA, 2005) and the California Environmental Protection Agency (CalEPA, 2005). Dose-response values were selected following USEPA's memorandum regarding the hierarchy of sources (USEPA, 2003a). RfDs and CSFs for arsenic are presented in Tables 9 through 12.

To evaluate dermal absorption of constituents in soil, it is necessary to determine dermal absorption fractions. The dermal absorption fraction accounts for lower absorption through the skin. USEPA (2004) provides dermal absorption fractions for a limited number of constituents (Exhibit 3-4 in US EPA, 2004). The recommended dermal absorption fraction for arsenic of 0.03 has been used in the development of the RG. In addition, WVDEP (2001, Table E-1) recommends an oral absorption factor of 0.4 for arsenic. It is assumed that absorption via inhalation is 100%. The absorption factors are presented in Table 13.

Lead

Because of the uncertainties in the dose-response relationship between exposure to lead and biological effects, it is unclear whether the noncarcinogenic effects of lead exhibit a threshold response. Therefore, an RfD for lead is not available. Although USEPA has classified lead as a B2 (probable human) carcinogen, no CSF has been developed. Therefore, potential exposures to lead cannot be evaluated using the traditional methods of risk assessment. Two mathematical models have been developed by the USEPA to describe the behavior of lead in the human body and to evaluate the potential impacts of lead on human health. The models include the Integrated Exposure Uptake Biokinetic (IEUBK) model for evaluating early childhood (birth through seven years of age) exposure to lead in multiple environmental media in a residential setting, and the Adult Lead Exposure Model (ALEM) for evaluating adult exposure to lead in soil in a non-residential setting. The ALEM is designed to protect the most sensitive receptor for elevated lead exposures, an unborn fetus. The ALEM was used to develop RGs protective of a potential teenage trespasser contacting soil on-site.

3.2.3 Development of RG for Arsenic in Soil

Exposure assumptions for the incidental ingestion, dermal contact, and inhalation of arsenic in soil are presented in Table 8, previously presented. Default exposure assumptions are not typically available for trespasser exposure scenarios. Therefore, the selected exposure factors were derived from USEPA sources where available, and are based on best professional judgment when specific regulatory guidance is not available. For the purpose of the arsenic RG development, it was assumed that a trespasser may visit the Site 1 day per week, 52 weeks per year for an assumed exposure frequency of 52 days per year over a period (exposure duration) of 11 years from age 7 through 18. It was assumed that a teenage trespasser would be on-site for 2 hours per visit and may inhale dust particles migrating from soil to outdoor air. The trespasser is assumed to inhale air at a rate of 1.2 m^3/hour, which is the rate listed in USEPA guidance (1997) for children participating in activities requiring moderate exertion. It is assumed that the trespasser's head, feet, hands, forearms and lower legs may come into incidental contact with arsenic in soil, and that a trespasser may incidentally ingest 100 mg of soil per Site visit. The trespasser is assumed to weigh 47 kilograms and is assumed to have a lifetime of 70 years.

Equations used to evaluate trespasser exposure and derive the RG for arsenic in soil are presented below. All dose calculations were made on a unit basis (i.e. assuming a concentration of 1 mg arsenic/kg soil).

The calculation of the exposure dose from incidental ingestion of and dermal contact with soil and inhalation of particles migrating from soil follow USEPA (1989) guidance, as shown below:

3.2.3.1 Estimating Potential Exposure from Ingestion of and Dermal Contact with Soil

Average Daily Dose (Lifetime and Chronic) Following Incidental Ingestion of Soil (mg/kg-day):

$$ADD = \frac{CS \times IR \times EF \times ED \times AAF_o \times CF}{BW \times AT}$$

where:

ADD	=	Average daily dose (mg/kg-day)
CS	=	Soil concentration (mg/kg soil)
IR	=	Ingestion rate (mg soil/day)
EF	=	Exposure frequency (days/year)

ED	=	Exposure duration (year)
AAF_o	=	Oral-soil absorption adjustment factor (AAF) (unitless)
CF	=	Unit conversion factor (kg soil/10^6 mg soil)
BW	=	Body weight (kg)
AT	=	Averaging time (days)

Average Daily Dose (Lifetime and Chronic) Following Dermal Contact with Soil (mg/kg-day):

$$ADD = \frac{CS \times SA \times AF \times EF \times ED \times AAF_d \times CF}{BW \times AT}$$

where:

ADD	=	Average daily dose (mg/kg-day)
CS	=	Soil concentration (mg/kg soil)
SA	=	Exposed skin surface area (cm^2/day)
AF	=	Soil to skin adherence factor (mg soil/cm^2)
EF	=	Exposure frequency (days)
ED	=	Exposure duration (year)
AAF_d	=	Dermal-soil AAF (unitless)
CF	=	Unit conversion factor (kg soil/10^6 mg soil)
BW	=	Body weight (kg)
AT	=	Averaging time (days)

3.2.3.2 Estimating Potential Exposure via Inhalation

Average Daily Dose (Lifetime and Chronic) Following Inhalation of Particles (mg/kg-day):

$$ADD = \frac{CA \times IR \times AAF_i \times ET \times EF \times ED}{BW \times AT}$$

where:

ADD	=	Average daily dose (mg/kg-day)
CA	=	Air concentration (mg/m^3)
IR	=	Inhalation rate (m^3 /hr)

AAF_i	=	Inhalation AAF (unitless)
ET	=	Exposure time (hours/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (year)
BW	=	Body weight (kg)
AT	=	Averaging time (days)
CA	=	CS (mg/kg)/Particulate Emission Factor (PEF; m^3/kg)

The PEF is calculated using the approach recommended by USEPA in the 1996 *Soil Screening Guidance: User's Guide* and is presented in Table 14.

The soil RG for arsenic was calculated by combining the estimates of exposure described above with estimates of toxicity present in Tables 9 through 12 to arrive at unit-based risk estimates. These unit-based risk estimates were then used to derive the RG for arsenic in soil. The unit-based risk estimate calculation is provided in Appendix F.

The arsenic RG was calculated to represent the concentration in soil which would correspond to a particular target risk level. The equation used to calculate the RG is:

$$RG\ (mg/kg) = \frac{Unit\ SoilConcentration\,(mg/kg)\,x\,T\arg et\ \ (Risk\ or\ HQ)}{Unit\ based\ (Risk\ or\ HQ)}$$

A unit soil concentration of 1 mg/kg, a target risk level of 1 x 10^{-5}, and a hazard index of one were used to develop the RG. The identification of the arsenic soil RG of 307 mg/kg, protective of a hypothetical teenage trespasser, is presented in Table 15.

3.2.4 Development of RG for Lead in Soil

The Technical Review Workgroup (TRW), developer of the methodology recommended for use in the ALEM, assumes that there is a baseline blood lead concentration in the adult population of the United States. The baseline blood lead concentration is intended to represent the best estimate of a reasonable central tendency value for women of child-bearing age without previous excessive occupational exposures (USEPA, 2003b). However, based on their review of blood lead data collected in support of the National Health and Nutrition Evaluation Survey (NHANES III; USEPA, 2002) the TRW has identified a reasonable range of potential geometric mean baseline blood lead levels which are dependent on race. The recommended range is 1.4 -1.8 ug/dL (USEPA, 2002). The midpoint of this range (1.6 ug/dL) was employed in the development of RGs.

As part of the ALEM methodology it is assumed that there is a relationship between uptake of lead into the body and blood lead levels. A numerical value, called a biokinetic slope factor (BKSF), is assigned to represent the relationship between uptake of lead into the body and blood levels. The TRW recommended BKSF of 0.4 ug Pb/dL blood per ug Pb absorbed/day (USEPA, 2003b) was utilized in this risk assessment.

The extent of potential health effects resulting from exposure to lead in soil is dependent upon the amount of lead absorbed from ingested soil into the blood stream. The ALEM incorporates an absorption fraction (AF) parameter to represent the fraction of lead in soil ingested daily that is absorbed from the gastrointestinal tract. The TRW (USEPA, 2003b) recommended value of 0.12 for absorption from soil has been employed in this risk assessment. This value is based on the assumption that the absorption factor for soluble lead is 0.2, and that the relative bioavailability of lead in soil compared to soluble lead is 0.6.

Based on the assumption that young children will not be present at the Site, on-site soil lead exposures were estimated using the USEPA (2003b) ALEM (the IEUBK model is applicable only to young children). Based on the assumptions described above regarding baseline blood lead levels and the uptake of lead into the blood, the model predicts the geometric mean blood lead level for adult receptors potentially exposed to soil at the Site, and also predicts the 95th percentile blood lead concentrations among fetuses of adult workers. The model also calculates the concentration of lead in soil that would result in acceptable blood lead levels. The model was developed using a sensitive adult receptor, which is a woman of childbearing age. The target blood lead level of concern in the unborn fetus is 10 ug/dL.

The equation below (USEPA, 2003b) was used to calculate the adult blood lead concentration goal:

$$PbB_{adult,central,goal} = \frac{PbB_{fetal,0.95,goal}}{GSD_{i,adult}^{1.645} \bullet R_{fetal/maternal}}$$

where:

$PbB_{adult.central,goal}$ = Goal for central estimate of blood lead concentration (ug/dL) in adults (i.e., women of child-bearing age) that have site exposures. The goal is intended to ensure that $PbB_{fetal,\ 0.95,\ goal}$ does not exceed 10 ug/dL.

$PbB_{fetal,\ 0.95,\ goal}$ = Goal for the 95th percentile blood lead concentration (ug/dL) among fetuses born to women having exposures to the specified site soil concentration. This is interpreted to mean that there is a 95%

likelihood that a fetus, in a woman who experiences such exposures, would have a blood lead concentration no greater than $PbB_{fetal, 0.95, goal}$ (equal to the 10 ug/dL for the approach described here).

$GSD_{i, adult}$ = Estimated value of the individual geometric standard deviation (GSD) (dimensionless); the GSD among adults (i.e., women of child-bearing age) that have exposures to similar on-site lead concentrations, but that have non-uniform response (intake, absorption, biokinetics) to site lead and non-uniform off-site lead exposures (site-specific, dimensionless). A GSD_i of 2.2 representing the midpoint of a range of values recommended by USEPA (2002) was selected for the derivation of RGs. The exponent, 1.645, is the value of the standard normal deviate used to calculate the 95th percentile from a lognormal distribution of PbB.

$R_{fetal/maternal}$ = Constant of proportionality between fetal blood lead concentration at birth and maternal blood lead concentration (0.9; dimensionless).

The following equation (USEPA, 2003b) was used to calculate the risk-based RG for lead based on the trespasser scenario described in Section 3.2.1.2:

$$RBRG = \frac{(PbB_{adult,central,goal} - PbB_{adult,0}) \bullet AT}{(BKSF \bullet IR_S \bullet AF_S \bullet EF_S)}$$

where:

RBRG = Risk-Based Remedial Goal (ug/g)

$PbB_{adult,central,goal}$ = Goal for central estimate of blood lead concentration (ug/dL) in adults (i.e., women of child-bearing age) that have site exposures. The goal is intended to ensure that $PbB_{fetal, 0.95, goal}$ does not exceed 10 ug/dL (site-specific).

$PbB_{adult, 0}$ = Baseline blood lead concentration (ug/dL) in adults (i.e., women of child-bearing age) in the absence of exposures to the site that is being assessed (1.6 ug/dL).

AT = Averaging time; the total period during which soil contact may occur (365 days); assuming continuing long term exposures (i.e., not just during pregnancy).

BKSF = Biokinetic slope factor relating (quasi-steady state) increase in typical adult blood lead concentration to average daily lead uptake (0.4 ug/dL blood lead increase per ug/day lead uptake).

IR_S = Intake rate of soil (described for each receptor in Section 3.2.1.2).

AF_S = Absolute gastrointestinal absorption fraction for ingested lead in soil (0.12; dimensionless).

EF_S = Exposure frequency for contact with assessed soils (days of exposure during the averaging period); described for each receptor in Section 3.2.1.2.

A spreadsheet version of the ALEM model developed by the USEPA (2003b) was used to calculate the RG for the trespasser scenario described in Section 3.2.1.2. The model inputs and resulting RG for lead of 2,100 mg/kg are presented in Table 16.

3.3 Remediation Approach

Surface soils contaminated with lead in concentrations exceeding the Site-specific Remedial Goals have been identified in a number of locations on Site, as enumerated in Section 2 of this Plan.

The overall remediation approach is as follows:

- Excavate and remove impacted soil within the footprint of the "residential backyard" area of the Site and replace with suitable backfill, topsoil, and seed to restore this area to its original condition and permit unconditional use of the area;

- Protect tenants in the residential structure during remediation activities in the "residential backyard" area;

- Implement engineering controls for the remaining lead contaminated surface soil, ceramic, and other debris that tested positive for concentrations of 2,100 ppm or higher;

- Implement additional engineering controls for hillsides on the southwestern and northern boundaries of the Site to stabilize and control erosion in these locations;

- Perform supplemental remediation activities to remove for proper disposal the transformers located in the courtyard area of the Site as well as drums of materials which are identified to have been associated with the former pottery manufacturing operations; and,

- Ensure the integrity of the existing gas pipeline during construction.

4.0 IDENTIFICATION OF REMOVAL ACTION

4.1 Description of Proposed Removal Action

For the purposes of attaining the objectives of the removal actions delineated in Section 3 and implementing the remediation in a logical, timely, and cost-effective manner, the Site has been divided into areas to reflect the various remedial approaches that are proposed for the Site. Figure 13 shows the proposed remediation areas in a conceptual plan. Each area is described below, along with the proposed removal action, if any, which is proposed to be implemented for the area.

The identification of the areas and the proposed remedial approaches for each are commensurate with the results of the risk assessment presented in Section 3, wherein site-specific risk-based remediation goals were developed for both lead and arsenic. No soil samples exhibited concentrations of arsenic greater than the remediation goal of 307 mg/kg. Therefore, the remediation will focus on the prevention of exposure to those exterior areas of the Site that are accessible by trespassers and that have demonstrated lead concentrations in surface soil greater than 2,100 mg/kg in accordance with the risk assessment, with the exception of Area 1 (the "Residential Backyard Area"), as discussed below. The residence on the eastern boundary of the Site, the former manufacturing building itself, and the leased garages are specifically excluded from the removal action, unless otherwise indicated below.

4.1.1 Area 1 (Residential Backyard Area)

As shown in Figure 13, this area consists of approximately 0.5 acres comprising the grassed area behind (to the west of) the current "residence" as well as the "driveway apron" extending from the existing front gate of the facility to 8th Street. The area is generally bounded by the residence on the east, the three occupied garages to the west and south, and the facility smokestack and exterior walls of the facility to the north. Prior to being fenced by Newell to prevent access from the residence in accordance with the Consent Order, the area showed evidence of recreational use by the residents and for general access to the garages. Although the new fencing blocks access to this area by the residents, access to the garages is still possible through the main (front) gate of the facility.

Lead concentrations in the 9 surface soil samples (0 to 2 foot depth) collected in this area range from 275 to 1,215 mg/kg. Six of the 9 samples collected at the 2 to 4 foot depth were "Non-Detect" for lead; the remaining three samples exhibited concentrations of 50, 67, and 74 mg/kg lead, respectively. Eight of the 9 samples collected at the 4 to 6 foot depth were "Non-Detect" for lead; the remaining sample exhibited a concentration of 84 mg/kg lead.

The proposed remediation for Area 1 consists of excavation of soil to a depth of 2 feet. The excavated soil will be used in the grading of other areas of the Site (i.e., will remain on Site) as described below.

The excavated soil will be replaced with clean backfill and topsoil, and the area will be seeded. In accordance with the terms of the Consent Order, residents living in the adjacent structure will be relocated for approximately two weeks during the remediation of this area. It is anticipated that garage access will be interrupted for this limited period of time.

Additional fencing will be installed in this area to prevent access to the remaining areas of the Site. This area will be the last to be remediated since the main access to the facility will be through the gate on 8th Street and thence westward into Area 3B. Temporary fencing will be established to separate the construction entrance from the residential backyard area. The construction will be scheduled such that the bulk of the work on Site will occur during months when the backyard area is normally minimally used (i.e., Fall and Winter).

4.1.2 Area 2 (Western and Southern Hillside)

This area consists of the hillside that "wraps" around the western and most of the southern portion of the facility and extends from the toe of slope generally along the eastern boundary of the highway right-of-way to the flatter portions of the Site to the west of the building, as well as from the toe of slope in the vicinity of the unnamed tributary to Marks Run to the flatter portions of the Site to the south of the building. The area is characterized by steep slopes (approximately 20 feet vertically in 30 feet horizontally) comprised of soil and mixed soil and ceramic. Ceramic shards and pottery molds are exposed in many locations. The steep slopes on the hillsides limit access to this area. The area covers approximately 1.3 acres.

Lead concentrations in surface soils in this area of the Site range from 32 to 34,284 mg/kg, the latter concentration being anomalous and believed to be influenced by its location at the base of a large area of exposed shards. Of the 31 sample locations in this area, 7 exceeded the lead remediation goal of 2,100 mg/kg.

The remediation approach for this area will consist of re-establishing the slope grades based upon the results of a stability analysis. It is assumed that minimal re-grading will be necessary as a result of this analysis, and that for the most part the existing slope can be maintained. It is also assumed that most of the construction work will be confined to the southwestern-most area, where currently the grade is near vertical in at least one location and pottery molds and shards are exposed in layers. The topography along the southern hillside will be "smoothed" and blended to meet grade near the garages at the eastern end of the area. All material moved as part of the re-grading operation will be re-deposited on the hillside and used to form the final grade. Following re-grading, a one foot thick layer of soil fill will be placed on the slope and the entire area will be vegetated with crown vetch or other suitable ground cover. A limited length (150 - 200 feet) of Marks Run will be re-aligned as part of the remediation of this area, in order to allow for the proper grading of the southwestern hillside. Also, a new storm water conveyance pipe will be installed from the existing detention basin to re-align the unnamed tributary to Marks Run as shown in Figure 13. Suitable soil erosion control measures such as rip-rap drainage channels will be utilized to prevent erosion on the hillsides.

4.1.3 Areas 3A (Building Grounds West) and 3B (Building Grounds South)

Area 3A is situated between the building and the top of slope on the west side of the facility. It encompasses the existing gas well and extends northward to the existing fence. This 0.7-acre area includes 10 pre-designated locations in the "H" row of the sampling grid which were not sampled due to the presence of ceramic shards. Four of 11 surface sampling locations exceeded the remediation goal of 2,100 mg/kg for lead in this area. One sample location (I-04) exhibited a surface soil lead content of 296,640 mg/kg, which is anomalous and most likely indicative of glaze or some similar material being deposited on the ground at this spot.

The remediation approach for this area will be to minimally re-grade and then cover the area with a one foot thick layer of soil fill. The area will then be vegetated with crown vetch or other suitable ground cover. In addition, the area proximate to sample grid point I-04 will be visually inspected for signs of discoloration, etc. which may indicate that discrete quantities of glaze or other material were inadvertently deposited.

Area 3B contains approximately 1.5 acres and is located just south of the south side of the building, and extends eastward past the garages to 8th Street. It is bounded on the east by Area 1 and on the south by Area 2. Twenty-five sampling locations were situated in this area; no surface samples exceeded the site-specific risk-based remediation goal of 2,100 mg/kg lead. Therefore, no remediation is proposed for this area. Area 3B will be used during the remediation of the Site by the remediation contractor for equipment storage and for the construction of decontamination and support facilities (tire wash pad, office trailer, sanitary facilities). A new gate will be installed on the east side of the area and new fencing will be installed as shown in Figure 13 to effectively segregate Area 1 (Residential Backyard Area) from this area and the remainder of the Site.

The existing natural gas line leading from the on-site production well to the gas house located next to the facility entrance on 8th Street will be properly managed during the removal construction activities. As previously reported, the line is currently shallow or exposed along a majority of its length. The line will be shut-down or otherwise protected during the construction. However, the proper final disposition of this line will be the responsibility of its owner and the construction activities will be closely coordinated with the re-alignment and/or burial of the line.

4.1.4 Area 4 (Courtyard)

The courtyard area of the building contains the elevated water tower, stack, and transformers (three transformers previously mounted on poles in this area were lowered to the ground for sampling during the performance of the ECS). Two of the 4 surface soil samples that were collected in the courtyard exceeded the remediation goal for lead of 2,100 mg/kg (the results for the four samples were 125, 695, 2,412, and 3,706 mg/kg lead, respectively). Due to its configuration and proposed fencing, public access to the courtyard is expected to be extremely limited. The transformers will be removed for proper disposal. The remediation approach for this area will be to cover the area with a one foot thick layer of soil fill. The area will then be seeded to establish a vegetative growth. New fencing will isolate this area from the Residential Backyard Area.

4.1.5 Area 5 (Northern Hillside)

This area is located to the north of the former manufacturing building and is situated between the building and the Ohio River. The area is heavily wooded and is very steep which severely limits access and constructability. The barbed wire facility fence parallels the facility about five feet from the exterior wall at the top of the slope. The shoreline at the toe of slope is gravel with some areas of rip rap. The area is bounded on the east by the property line at 8th Street and on the west by the existing fence-line.

Nine soil sample locations and three sediment sample locations are included in this area. The "mid-slope" surface soil samples (G-02, H-02, and J-02) exhibited lead concentrations of 76, 50, and 69 mg/kg, respectively. Lead concentrations in the five sediment samples that were tested (two sediment locations were tested at two near-surface depths) ranged from 44 mg/kg to 1,314 mg/kg and averaged 318 mg/kg. The 6 "top of slope" sampling points situated adjacent to the building (J-, K-, M-, N-, O-, and P-02) exhibited surface soil lead concentrations ranging from 797 to 143,033 mg/kg lead. Sediment samples ranged in lead concentration from 44 mg/kg (SDOH5, 2-4" depth) to 1,314 mg/kg (SDOH3, 3-5" depth), all below the risk-based remediation goal.

The hillside in this area is situated at a slope of approximately 45 degrees and in some areas is significantly steeper. The slope is currently lightly wooded and the majority of the slope is vegetated. The removal action for this area will consist of additional access prevention in the form of additional fencing being installed along the eastern boundary of the property.

4.1.6 Area 6 (Silo Material)

The material currently in the silos has been tested as reported in Section 3 of this Plan. This material is non-hazardous and will be left in-place.

4.1.7 Area 7 (Marks Run East)

This area comprises approximately 1.4 acres and is for the most part situated beneath the elevated U.S. Route 30. The area is bounded on the east by Area 2, on the north by the Ohio River, and on the west and south by Marks Run. Only one surface soil sample collected in this area contained lead which exceeded the risk-based remediation goal that is protective of trespassers of 2,100 mg/kg (sample location number E-04, which contained 3,390 mg/kg lead). Therefore, spot remediation will be performed in the vicinity of this sample location by relocating this material to another area onsite which will be covered. No other activity is proposed for this area.

4.1.8 Area 8 (Marks Run West)

This area is situated west and south of Marks Run and is approximately 1.8 acres in size. The area extends westward to the westernmost sampling grid row (Row C). Similar to the Marks Run East area, only one surface soil sample collected in this area contained lead which exceeded the risk-based remediation goal of 2,100 mg/kg (Sample No. D-09, which contained 2,726 mg/kg lead in the surface sample, and rapidly decreasing lead levels in the subsequent deeper samples). Spot remediation will be performed in the area of sample grid point D-09 and this material will remain on site in an area that will be covered. No other activity is proposed for this area.

4.1.9 Marks Run

As described in Section 2, sediment in Marks Run was sampled at 10 locations along its length from the Ohio River to its confluence with the unnamed tributary running east to west at the southern boundary of the Site. Sediment samples were collected for the most part from the 2 to 4 inch depth strata, and results ranged from "Non-Detect" to 583 mg/kg lead, with 8 results below 100 mg/kg lead. With the exception of re-alignment of a section of Marks Run in the southwestern corner of the Site as described above, no additional action is planned.

4.1.10 Additional Removal Action Activities

Additional removal action activities will be undertaken for some of the material within the former manufacturing building. As identified in Section 2.3.3, hazardous material, attributed to the former pottery manufacturing operations, was determined to be present in two of the samples collected during the interior building assessment. Sample IB-2, consisting of a wet clay-like material on the floor and some floating material in concrete pits was collected in the former manufacturing building south of the silos, and sample IB-6, consisting of a pinkish powdery material on the floor and in a metal trough was collected in the eastern portion of former manufacturing area.

These materials will be removed, containerized and properly disposed off-site. ENSR estimates that the combined volume of both of these materials is approximately 2 cubic yards.

4.2 Schedule

Figure 14 contains the proposed schedule for the removal action described herein. The schedule contains provision for one 'round' of comments and one revision of this Plan; following final remediation design and contractor procurement, the remedial construction period is currently scheduled for Fall 2006 through Spring 2007.

4.3 Post-Removal Action Site Controls

Post-removal site controls will be implemented at the conclusion of the removal action described above. The objective of the controls will be to ensure the integrity of the work performed at the Site pursuant to the Consent Order. These measures will include the following:

- Operation and Maintenance. Newell will enter into long-term operation and maintenance agreements ("O&M Agreements") with the property owners. These O&M Agreements will require the property owners to maintain the soil cover, vegetation and erosion control measures in portions of the Site designated as Areas 2, 3A and 4 on Figure 13. The owners must also maintain the integrity of the surface grade of the Former Manufacturing Building, which serves as a barrier to possible subsurface lead and arsenic contamination. Additionally, the O&M Agreements will require the property owners to maintain the integrity of the existing and new fencing (including signage attached to the fencing) that is illustrated on Figure 13.

- Deed Restrictions. Newell will formalize further restrictions on future use by recording deed restrictions that will aim to protect construction and utility workers from arsenic and lead that remains at the Site. These use restrictions will apply to the Facility, as defined in the Consent Order. (All references to areas of the Site relate to Figure 13.)

    - The Grantee must sign on to the O&M Agreements as the successor to the current property owner.

    - All portions of the Facility, except for Area 1, may be used solely for nonresidential purposes.

    - The following restrictions will apply to Areas 2, 3A, 3B, 4 and 5, as well as the surface grade of the Former Manufacturing Building. Grantee must not allow any excavation of subsurface drilling in these portions of the Facility without prior written notice and submission of a plan to the West Virginia Department of Environmental Protection (DEP), or its successor, with a schedule of implementation setting forth (1) worker health and safety requirements, (2) control measures for airborne contaminants, (3) access limitations during excavations, (4) a sediment erosion control plan and (5) a soil testing and disposal plan. If the plan includes excavation or subsurface drilling in Areas 2, 3A or 4, it must additionally provide for restoration of any soil cover, vegetation and erosion control measures that will be disrupted by the excavation. If the plan includes excavation of or subsurface drilling through the surface grade of the

Former Manufacturing Building, it must additionally provide for restoration of that surface grade.

- All excavated material removed from the Facility must be managed, transported and disposed of in compliance with all applicable federal, state and local laws, regulations and ordinances including, without limitation, those pertaining to environmental protection and occupational safety.

5.0 REFERENCES

The following references were used in the preparation of this Remedial Action Implementation Plan:

Section 2:

Sanborn Map Company. Sanborn Fire Insurance Maps dated 1902, 1907, 1910, 1923 and 1942 of Chester, Hancock County, West Virginia.

Section 3:

CalEPA. 2005. California Environmental Protection Agency. Office of Environmental Health Hazard Assessment. Chronic Reference Exposure Levels (RELs). February 2005. http://www.oehha.org/air/chronic_rels/AllChrels.htm.

USEPA. 1989. Risk Assessment Guidance for Superfund: Volume I. Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response. U.S. Environmental Protection Agency, Washington, D.C. USEPA 540/1-89/002.

USEPA. 1991. Human Health Exposure Manual, Supplemental Guidance; Standard Default Exposure Factors. OSWER Directive No. 9285.6-03. U.S. Environmental Protection Agency, Washington, D.C.

USEPA. 1996. Soil Screening Guidance: User's Guidance Manual. Office of Solid Waste and Emergency Response. EPA/540/R-96/018.

USEPA. 1997. Exposure Factors Handbook. Office of Research and Development. National Center for Environmental Assessment. U.S. Environmental Protection Agency. Washington, DC.

USEPA, 2002. Blood Lead Concentrations of U.S. Adult Females: Summary Statistics from Phases 1 and 2 of the National Health and Nutrition Evaluation Survey (NHANES III). Office of Solid Waste and Emergency Response. U.S. Environmental Protection Agency. Washington, D.C.

USEPA. 2003a. Human Health Toxicity Values in Superfund Risk Assessments. Office of Superfund Remediation and Technology Innovation. OSWER Directive 9285.7-53. December 5, 2003.

USEPA, 2003b. Recommendations of the Technical Review Workgroup for lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. Technical Review Workgroup for Lead. U.S. Environmental Protection Agency.

USEPA. 2004b. Risk Assessment Guidance for Superfund. Volume I. Human Health Evaluation Manual. Part E, Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. OSWER 9285.7-02EP. July 2004.

USEPA. 2005. Integrated Risk Information System (IRIS). Environmental Criteria and Assessment Office. U.S. Environmental Protection Agency, Cincinnati, OH. [URL: http://www.USEPA.gov/ngispgm3/iris].

WVDEP. 2001. West Virginia Voluntary Remediation and Redevelopment Act Guidance Manual. Version 2.1. March 2001.

Table 1
Site Activities to be Accomplished Under the Requirements of the Consent Order

Sect. 8.3	Summary of Requirements Contained in Consent Order [a]	Status/Comments [b]
a.	Restrict public access	Complete
b.	Warning signs	Complete
c.	Residential fencing	Complete
d.	Temporary relocation of residents, as warranted	These arrangements will be made, as warranted, such that the relocation will occur prior to (and for the duration of) removal action activities in the "Residential Backyard" area of the Site
e.	Extent of Contamination Study	Complete. Results of the sampling are presented in this Plan
f.	Sample for additional contaminants and compare to EPA RBCs	
g.	Excavate and remove materials $\geq$ 400 ppm lead, $\geq$ 10 ppm PCBs, and additional contaminants > Site-specific RAGs	As a result of the Site-specific data developed during the Extent of Contamination Study (ECS), and in conformance with Section 8.3i of the Consent Order, engineering controls in lieu of excavation will be proposed as the remedial approach for the Site. The design of these controls will be based upon the results of a Site-specific risk assessment such that the controls are protective of human health.
h.	Dispose of certain contaminated materials off-site	As described in Section 4 of this Plan, this action will be undertaken during the removal action phase of the project.
i.	Institute engineering controls in lieu of excavation if contamination exceeds a depth of 2 ft., or if total amount of contaminated soil at the Site > 5000 cubic yards	This is the selected remedial approach to the Site as described in this Plan.
j.	Conduct post-removal sampling	No post-removal sampling is proposed
k.	Restore excavated areas to prevent direct contact with remaining soils that may contain contaminants at or above the RAGs. Place demarcation material where lead remains.	Addressed in Section 4 of the Plan; no demarcation material is proposed.
l.	Dispose contaminated water generated during sampling in accordance with applicable laws and regulations	Complete
m.	Provide site specific health and safety measures, including a HASP and a safety assessment of the structural soundness of any on-Site structures subject to the Consent Order	Complete - HASP will be updated for remedial action to reflect specific construction activities and then-current Site conditions
n.	Obtain a Hazardous Waste Generator Identification Number	Complete
o.	Provide for post-removal site control activities	Post-removal site control activities are identified in Section 4 of this Plan.
p.	RAP implementation schedule	An implementation schedule is contained in Section 4 of this Plan.

NOTES:

(a) Summary Description Only; see Consent Order Paragraph 8.3 for Full Text

(b) Status as of January, 2006

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
D-02-A	0-2'	84	<57 (c)	266	<165	<300	<1095	<1185	317	<165	<75
D-02-A2 (a)	0-2'	95	<56	212	<165	<300	<1125	<1215	340	<100	<95
D-02-B	2-3'	137	<64	161	270	<315	<1230	<1304	258	<87	<89
D-04-A	0-2'	182	<78	194	<195	<375	<1410	<1380	324	<124	<48
D-04-B	2-4'	121	<59	175	<165	<330	<1274	<1230	268	<85	<104
D-07-A	0-1'	79	<47	<84	<140	<225	<750	<750	378	<130	<78
D-08-A	0-2'	1512	<165	124	<150	<255	<795	<855	237	<103	<96
D-08-B	2-4'	174	<68	161	<150	<270	<990	<990	491	<165	<117
D-08-C	4-6'	1728	<180	174	<165	<270	<930	<975	324	<105	<105
D-08-D	6-8'	63	<51	<99	<165	<285	<975	<960	538	<150	<86
D-08-D2	6-8'	84	<51	<90	<145	<255	<915	<900	396	<90	<71
D-09-A	0-2'	2726	<195	<83	<123	<165	<390	<510	<180	<99	<77
D-09-B	2-4'	827	<125	186	<180	<300	<1065	<1035	290	<128	<99
D-09-C	4-6'	132	<59	171	<150	<270	<975	<975	443	<147	<85
D-09-D	6-8'	63	<45	113	<137	<240	<795	<840	249	<132	<127
D-10-A	0-2'	1917	<180	118	<165	<240	<765	<765	442	<109	<71
D-10-B	2-4'	103	<55	<95	<165	<270	<945	<945	388	<150	<138
D-10-C	4-6'	68	<47	<88	<139	<225	<780	<795	309	<102	<57
D-10-D	6-8'	68	<44	<86	<134	<270	<885	<915	618	<99	<132
D-11-A	0-2'	1116	<145	174	<165	<330	<1170	<1155	366	<142	<83
D-11-B	2-4'	78	<56	118	214	<315	<1140	<1125	359	<109	<100
D-11-B2	2-4'	87	<59	167	<180	<345	<1304	<1274	253	<78	<108
D-11-C	4-6'	42	<40	<87	<136	<240	<885	<885	367	<101	<99
D-11-D	6-8'	<34	<38	<89	<150	<270	<900	<915	430	<112	<79
D-12-A	0-2'	635	<130	<119	<180	<330	<1200	<1185	403	<102	<93
D-12-B	2-4'	<41	<44	<102	<150	<285	<1005	<1050	485	<90	<97
D-12-C	4-6'	56	<49	<103	<165	<300	<1095	<1140	542	<140	<95
D-13-A	0-2'	540	<99	108	<144	<240	<885	<915	520	<134	<102
D-13-B	2-4'	34	<35	<82	<135	<210	<735	<765	456	<150	<143
D-13-C	4-6'	40	<39	96	<139	<240	<855	<900	540	<110	<93
D-13-D	6-8'	<34	<39	<86	<140	<255	<915	<945	483	<89	<93

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
D-14-A	0-2'	662	<111	<94	<150	<270	<960	<975	532	<123	<90
D-14-B	2-4'	545	<104	114	<165	<285	<915	<915	367	<93	<133
D-14-C	4-6'	<40	<42	<100	<165	<270	<960	<1005	546	<120	<75
D-14-D	6-8'	<41	<42	<104	<165	<285	<1035	<1050	282	<145	<93
D-15-A	0-2'	682	<116	160	<165	<300	<1020	<1050	412	<140	<108
D-15-B	2-4'	<44	<50	<102	<165	<300	<1125	<1125	375	<92	<76
D-15-C	4-6'	<34	<41	<98	<150	<270	<930	<975	431	<93	<81
D-16-A	0-2'	432	<95	<104	<165	<270	<930	<990	309	<81	<73
D-16-B	2-4'	<42	<44	<97	<165	<285	<990	<1035	262	<91	<83
D-16-C	4-8'	97	<55	<100	<165	<300	<1050	<1170	386	<88	<94
D-17-A	0-2'	175	<65	<102	<165	<270	<975	<990	<180	<135	<120
D-17-B	2-4'	89	<53	<95	197	<285	<1005	<1005	<195	<134	<91
D-17-C	4-6'	38	<42	<98	<165	<285	<1005	<1065	<225	<141	<76
E-02-A	0-2'	139	<70	176	<195	<360	<1350	<1440	371	<107	<115
E-03-A	2-4'	220	<66	309	<180	<345	<1274	<1260	<210	<121	<87
E-03-B	8-10'	410	<92	595	<210	<390	<1500	<1500	501	<150	<125
E-03-C	10-12'	209	<78	423	<210	<405	<1650	<1500	312	<131	<92
E-04-A	4-8'	8450	<495	1218	<345	<570	<2400	<2250	580	<180	<145
E-05-A	2-4'	355	<109	372	<240	<480	<1800	<1800	332	<137	<120
E-05-B	4-6'	248	<90	272	291	<465	<1950	<1800	320	<165	<106
E-05-C	6-8'	140	<70	232	<210	<360	<1410	<1334	404	<132	<89
E-06-A	2-4'	76	<52	116	231	<300	<1005	<990	468	<127	<103
E-06-B	4-6'	108	<55	<98	<165	<285	<960	<1050	480	<133	<110
E-06-C	6-8'	<38	<42	<95	<150	<255	<900	<930	586	<116	<74
E-07-A	2-4'	697	<135	340	314	<420	<1650	<1650	529	<165	<180
E-07-B	4-8'	129	<70	<116	256	<375	<1410	<1364	434	<144	<51
E-07-B2	4-8'	192	<71	<115	232	<345	<1334	<1274	411	<127	<111
E-08-A	2-4'	1080	<149	128	<165	<300	<1185	<1185	448	<119	<135
E-08-B	4-6'	55	<49	<98	<165	<285	<1035	<1020	643	<133	<101
E-08-C	6-8'	63	<44	92	381	<240	<825	<870	396	<127	<77
E-09-A	0-2'	260	<71	<87	<142	<240	<870	<870	<210	<129	<82

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
E-09-B	2-4'	159	<66	169	214	<315	<1230	<1170	403	<113	<83
E-09-C	4-6'	381	<88	224	<180	<300	<1140	<1080	605	<99	<121
E-09-D	6-8'	84	<52	<99	<165	<270	<1005	<975	<240	<165	<95
E-10-A	0-2'	572	<115	<103	<165	<330	<1125	<1125	500	<101	<81
E-10-B	2-4'	1718	<195	614	<240	<390	<1424	<1500	863	<85	<61
E-10-C	4-6'	106	<56	126	<150	<285	<990	<1020	460	<135	<84
E-10-D	6-8'	68	<44	<99	253	<270	<885	<915	462	<131	<63
E-11-B	4-6'	50	<42	84	<129	<240	<825	<870	357	<112	<71
E-11-C	6-8'	<34	<38	<98	<165	<300	<1005	<1050	555	<123	<47
E-11-D	8-10'	147	<63	<93	<135	<255	<960	<975	339	<118	<98
E-12-A	2-4'	167	<64	<101	<165	<270	<945	<1005	559	<147	<62
E-12-B	4-6'	<39	<42	<90	<148	<270	<1005	<990	461	<146	<95
E-12-C	6-8'	36	<39	<93	<144	<255	<855	<930	462	<135	<99
E-12-C2	6-8'	<34	<38	<96	<149	<255	<885	<945	406	<118	<98
F-03-A	0-1'	383	<95	408	<195	<330	<1200	<1260	311	<94	<109
F-03-B	2-4'	369	<104	413	<225	<435	<1800	<1650	381	<115	<83
F-03-C	4-6'	774	<136	605	<225	<390	<1440	<1410	613	<141	<87
F-03-D	6-8'	600	<124	405	<195	<405	<1500	<1500	636	<144	<122
F-04-A	0-2'	361	<90	401	<180	<315	<1185	<1230	360	<72	<113
F-04-B	2-4'	1368	<165	356	<180	<300	<1095	<1080	293	<180	<72
F-04-C	4-6'	1970	<210	343	<210	<390	<1394	<1440	270	<133	<113
F-04-C Rep (b)	4-6'	1881	<210	441	<210	<375	<1334	<1350	420	<125	<119
F-04-D	7-8'	1161	<165	682	<210	<360	<1440	<1334	555	<148	<105
F-05-A	0-2'	1502	<180	576	<195	<330	<1290	<1380	571	<96	<100
F-05-B	2-3'	936	<144	330	<210	<345	<1364	<1350	448	<97	<85
F-06-A	0-2'	1035	<143	413	<180	<315	<1200	<1304	356	<102	<75
F-06-C	5-6'	6053	<345	379	<195	<285	<825	<915	269	<165	<72
F-06-D	6-8'	58568	<1500	639	<495	<600	<1454	<1800	578	<180	<91
F-06-E	8-10'	12326	<480	220	<210	<255	<585	<690	582	<122	<93
F-06-F	10-12'	3634	<270	433	<195	<270	<825	<870	260	<149	<117
F-07-A	0-1'	1853	<195	405	<195	<360	<1320	<1274	423	<94	<100

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
F-07-B	3-4'	91791	<2100	564	<615	<720	<1650	<2400	298	<127	<112
F-07-C	4-6'	601	<133	592	<255	<495	<1950	<1800	433	<117	<121
F-07-D	6-8'	665	<124	346	<210	<390	<1500	<1454	320	<83	<84
F-08-A	0-2'	1377	<165	167	<165	<285	<990	<1035	280	<123	<69
F-08-B	3-4'	23489	<810	1060	<360	<405	<990	<1230	362	<150	<87
F-08-C	4-5'	2573	<225	224	<210	<315	<1065	<1080	428	<139	<112
F-08-D	6-8'	244	<79	<113	255	<315	<1244	<1230	533	<95	<74
F-09-A	0-2'	1961	<195	312	<180	<270	<945	<975	495	<113	<90
F-09-B	2-3'	5650	<315	126	<180	<225	<660	<735	316	<150	<92
F-09-C	4-6'	2357	<210	281	<165	<255	<855	<900	549	<145	<97
F-09-D	7-8'	6377	<345	327	<210	<285	<885	<960	444	<101	<113
F-10-A	0-2'	1853	<180	135	325	<270	<810	<870	385	<150	<120
F-10-B	2-4'	2493	<210	107	<150	<210	<630	<660	375	<101	<76
F-10-C	0-1'	1368	<165	239	<180	<285	<915	<945	647	<135	<107
F-10-D	3-4'	212	<68	89	<144	<255	<885	<930	456	<150	<101
F-11-A	0-2'	999	<141	106	<165	<270	<930	<945	328	<116	<72
F-11-B	2-3'	3058	<240	144	<165	<255	<840	<915	341	<150	<138
F-11-C	4-6'	50	<41	<84	<137	<225	<795	<870	348	<149	<94
F-11-D	6-8'	62	<41	<85	<135	<240	<780	<795	395	<116	<48
F-12-A	0-2'	422	<96	170	<165	<285	<1020	<1020	491	<165	<94
F-12-B	2-4'	2321	<210	846	<240	<315	<1065	<1140	325	<140	<92
F-12-C	4-6'	1377	<165	164	<165	<255	<870	<945	365	<94	<53
F-12-D	6-8'	147	<63	502	<195	<285	<930	<975	<195	<107	<120
F-13-A	0-2'	367	<86	105	<150	<240	<795	<825	476	<118	<49
F-13-B	2-4'	1314	<150	177	<150	<255	<945	<990	617	<124	<114
F-13-C	4-6'	2673	<225	165	<180	<270	<960	<960	426	<68	<124
F-13-D	6-8'	2025	<195	104	<165	<255	<840	<855	352	<137	<84
F-15-A	0-2'	565	<122	<105	<150	<270	<930	<930	393	<102	<80
F-15-B	2-4'	743	<129	126	<165	<285	<975	<1020	342	<86	<81
F-15-C	4-6'	142	<65	<101	<165	<285	<960	<1020	371	<116	<110
F-17-A	0-2'	954	<132	150	<150	<240	<795	<840	312	<150	<89

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
F-17-B	2-4'	149	<64	118	<165	<300	<1020	<1080	264	<127	<87
F-17-C	4-6'	40	<46	<104	<165	<300	<1095	<1080	500	<79	<68
G-02-A	0-2'	76	<50	217	<165	<285	<1050	<1125	<195	<89	<66
G-02-B	2-4'	137	<62	323	<180	<330	<1290	<1350	470	<116	<95
G-03-A	0-2'	77	<55	288	<180	<315	<1185	<1274	358	<119	<84
G-03-B	2-4'	4804	<360	1367	<330	<480	<1650	<1650	886	<150	<29
G-03-C	4-6'	462	<107	519	343	<435	<1650	<1650	275	<143	<105
G-03-D	6-8'	296	<113	<180	<285	<690	<2849	<2700	<130	<92	<72
G-04-A	0-1'	234	<74	339	<180	<315	<1155	<1200	406	<165	<84
G-04-B	2-4'	2978	<255	658	<225	<405	<1424	<1394	757	<138	<121
G-04-C	4-6'	3969	<300	1097	<285	<420	<1500	<1500	677	<69	<95
G-04-D	7-8'	316661	16589	3467	<1950	<2400	10298	<9298	<315	<195	<255
G-05-A	4-8'	111	<60	186	<195	<345	<1244	<1274	423	<127	<69
G-05-B	8-10'	79	<56	158	229	<300	<1095	<1065	381	<150	<68
G-05-C	10-12'	149	<59	224	<148	<240	<840	<870	427	<150	<73
G-05-C2	10-12'	215	<66	221	<180	<270	<900	<915	<180	<108	<61
G-06-A	0-2'	1584	<180	379	290	<345	<1200	<1200	503	<143	<99
G-06-B	2-4'	1431	<165	238	932	<330	<1125	<1140	<195	<125	<113
G-06-C	5-6'	1898	<195	259	<195	<360	<1484	<1650	446	<225	<113
G-06-D	6-8'	217	<68	287	231	<255	<1020	<1274	281	<150	<109
G-07-A	0-2'	1458	<165	269	<180	<300	<1110	<1125	442	<115	<132
G-07-B	2-4'	1161	<150	187	<180	<315	<1155	<1170	421	<137	<107
G-07-C	4-5'	20690	<750	1023	544	<450	<1334	<1484	313	<195	<110
G-07-D	6-8'	101652	<2400	9577	<1080	<1020	<2250	<2849	<345	<165	<118
G-08-A	0-1'	34284	<1095	537	<405	<600	<1950	<2100	<300	<225	<133
G-09-A	0-2'	5760	<345	203	<210	<330	<1050	<1140	554	<195	<105
G-09-B	2-3'	17995	<690	289	<285	<405	<1334	<1440	365	<143	<114
G-09-C	5-6'	154737	5168	939	<1020	<1080	<1950	<3300	<315	<210	<165
G-09-D	6-8'	error (g)	74394	10880	<5698	<6298	<9298	<16493	<315	<450	<330
G-10-A	0-2'	1565	<180	205	<165	<300	<1005	<1065	381	<120	<72
G-10-B	3-4'	22498	<765	387	<300	<405	<1050	<1244	392	<148	<100

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
G-10-C	5-6'	5849	<345	552	<225	<300	<855	<915	437	<99	<116
G-10-D	6-8'	1817	<180	299	261	<285	<900	<930	307	<112	<112
G-11-A	0-2'	918	<135	134	<165	<270	<960	<975	282	<135	<70
G-11-B	8-10'	<34	<40	<91	<165	<270	<945	<975	385	<135	<76
G-11-C	10-12'	<35	<40	<91	<140	<255	<885	<960	364	<114	<72
G-12-A	0-2'	673	<113	<95	<141	<255	<915	<945	468	<113	<74
G-12-B	3-4'	2114	<195	229	<165	<255	<810	<825	306	<106	<83
G-12-C	4-6'	83	<50	<91	<144	<255	<915	<960	550	<117	<119
G-13-A	0-2'	380	<88	<101	<165	<255	<930	<945	389	<127	<102
G-13-B	2-3'	671	<111	<99	<150	<255	<900	<915	334	<101	<62
G-13-C	4-5'	2249	<195	163	216	<270	<825	<855	373	<117	<80
G-13-D	7-8'	576	<109	126	214	<270	<930	<990	348	<96	<94
G-13-E	8-10'	1332	<165	<113	<180	<270	<960	<975	233	<118	<92
G-13-F	10-12'	<34	<40	<92	<165	<300	<1050	<1080	395	<116	<84
G-14-A	0-2'	1278	<147	238	<165	<240	<735	<780	263	<138	<97
G-14-B	2-4'	3897	<285	155	<210	<360	<1320	<1274	237	<70	<106
G-14-C	4-6'	<35	<39	<87	<132	<240	<870	<885	313	<129	<114
G-15-A	0-2'	824	<125	<101	<149	<255	<945	<990	352	<119	<100
G-15-B	2-4'	674	<121	<106	<165	<285	<990	<1035	361	<84	<63
G-15-C	4-6'	830	<129	<112	<180	<285	<930	<1050	438	<131	<86
G-15-D	6-8'	185	<67	100	<165	<315	<1065	<1095	735	<165	<120
G-16-A	0-2'	1134	<143	126	<149	<240	<825	<885	288	<111	<80
G-16-B	2-4'	132	<63	149	<180	<285	<1020	<1065	294	<148	<85
G-16-C	4-6'	<43	<47	<102	<165	<330	<1200	<1215	248	<165	<84
G-16-D	6-8'	44	<44	<100	<165	<285	<975	<1005	300	<113	<101
GH-16-A	0-2'	830	<124	221	<165	<240	<825	<825	315	<129	<64
GH-16-B	2-4'	1215	<148	186	<150	<240	<810	<840	361	<142	<91
GH-16-C	4-5'	738	<120	146	<180	<270	<960	<945	363	<134	<104
GH-16-D	5-8'	<37	<41	<105	<180	<300	<1095	<1095	352	<102	<87
H-02-A	0-1'	50	<42	283	<147	<270	<990	<1020	<165	<55	<62
H-13-A	11-14'	3220	<240	459	552	<285	<780	<855	433	<165	<96

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
H-13-B	15'	<38	<41	<93	<150	<240	<825	<870	398	<118	<95
H-14-A	11'	201	<65	<88	<141	<240	<855	<885	449	<124	<88
H-14-B	12'	598	<107	156	190	<255	<915	<975	559	<149	<101
H-15-A	0-2'	1557	<210	246	<210	<345	<1110	<1170	520	<79	<89
H-15-B	2-4'	1961	<240	346	<255	<360	<1140	<1155	458	<115	<124
H-15-C	4-6'	89	<61	<111	<180	<300	<1080	<1065	385	<102	<64
H-15-D	6-8'	<41	<49	<119	<210	<315	<1125	<1185	341	<108	<82
H-15-D2	6-8'	<42	<47	<108	<165	<270	<1020	<1095	457	<102	<95
H-16-A	0-2'	260	<80	169	222	<285	<960	<990	265	<84	<133
H-16-B	2-4'	896	<165	2584	973	<510	<1800	<1650	325	<114	<98
H-16-C	4-6'	927	<142	507	<210	<315	<1065	<1110	255	<79	<67
H-16-D	6-8'	<41	<44	<93	<149	<270	<1035	<1050	642	<132	<97
H-17-A	0-2'	1845	<180	287	<180	<270	<870	<930	360	<180	<93
H-17-B	2-4'	981	<139	354	<180	<270	<900	<900	444	<87	<96
H-17-C	4-6'	95	<55	<91	<146	<255	<900	<930	288	<101	<74
I-03-A	10'	638	<98	217	<136	<210	<735	<765	273	<122	<104
I-03-B	13'	396	<89	132	<165	<270	<945	<1005	316	<120	<83
I-04-A	0-2'	296940	14298	9029	<1950	<2250	<4800	<7949	12698	<255	<270
I-06-A	9'	10708	<495	1097	<300	<330	<750	<885	271	<141	<104
I-10-B	38-39'	4841	<360	742	<285	<375	<1170	<1215	428	<150	<137
I-10-B2	38-39'	3948	<300	618	<225	<330	<1035	<1080	372	<118	<68
I-10-C	39-40'	862	<150	268	<225	<345	<1185	<1200	315	<126	<90
I-11-A	38-40'	292	<75	194	<142	<210	<615	<675	458	<150	<53
I-12-A	0-1'	8513	<420	866	<285	406	<690	<885	<285	292	<195
I-13-A	0-1'	2484	<270	305	<270	<540	<2100	<1950	630	<180	<129
I-13-A Rep	0-1'	2294	364	329	<240	<495	<2100	<1950	566	<255	<44
I-13-B	26-27'	23213	<705	574	442	<330	<615	<840	484	<146	<102
I-13-C	27-28'	1350	<165	141	<165	<270	<975	<1005	344	<74	<120
I-14-A	24-26'	105	<55	136	<149	<240	<780	<795	214	<130	<84
I-14-A2	24-26'	136	<57	<97	<150	<255	<840	<780	261	<97	<104
I-14-B	26-28'	94	<54	<101	<150	<255	<885	<885	337	<90	<83

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
I-15-A	0-2'	323	<73	<81	<130	494	<390	<480	390	<144	<101
I-16-A	0-2'	66	<51	<99	<165	<270	<885	<1020	328	<116	<66
I-17-A	0-2'	266	<84	292	307	<390	<1484	<1440	459	<138	<110
I-17-B	2-4'	455	<96	264	<150	<255	<915	<915	552	<114	<100
I-17-B2	2-4'	406	<87	204	<150	<270	<960	<1020	314	<71	<51
I-17-C	4-8'	147	<77	<132	518	<360	<1200	<1244	395	<96	<64
I-17-D	8-10'	107	<61	<110	<165	<315	<1080	<1125	304	<119	<75
I-17-E	10-12'	<48	<53	<117	<180	<330	<1260	<1304	418	<115	<59
J-02-A	0-1'	69	<50	143	215	<300	<1020	<1035	399	<118	<94
J-03-A	0-2'	143033	7840	23153	<1650	<1380	<3449	<3900	1200	<285	<210
J-11-A	39-40'	<29	<35	<83	<143	<210	<660	<690	281	<105	<87
J-12-A	33-34'	116	<51	89	<138	<195	<570	<600	308	<87	<69
J-12-B	34-36'	83	<53	<89	<139	<255	<915	<885	<195	<123	<101
J-13-A	0-1'	2573	<240	255	407	<405	<1350	<1350	817	<150	<104
J-13-A2 (B)	33-34'	126	<64	<101	<165	<315	<1140	<1155	344	<122	<70
J-13-B2 (C)	34-36'	181	<69	116	<149	<285	<1035	<1065	344	<99	<66
J-14-A	27-28'	185	<68	122	<150	<255	<870	<870	316	<133	<96
J-14-B	28-30'	370	<86	<97	<165	<240	<720	<765	269	<117	<72
J-14-C	30-32'	156	<63	<93	<150	<240	<810	<840	237	<120	<96
J-15-A	24-26'	80	<46	105	<144	<255	<885	<870	292	<74	<79
J-15-B	26-28'	83	<49	133	<150	<255	<855	<870	442	<144	<103
J-16-A	0-2'	2628	<255	489	<240	<315	<1035	<1035	285	<124	<57
J-16-B	2-3'	2781	<285	525	<270	<390	<1320	<1424	409	<165	<132
J-17-A	0-2'	2052	<180	151	<150	<225	<720	<810	220	<91	<78
J-17-B	2-4'	2969	<225	234	<165	<255	<780	<810	460	<106	<87
K-02-A	0-2'	3931	<270	3485	<330	<345	<1155	<1244	909	<118	<132
K-11-A	0-2'	149	<66	<111	<165	<285	<870	<975	360	<95	<56
K-11-B	2-4'	218	<65	<91	205	<225	<720	<780	382	<84	<78
K-12-A	1-2'	7332	<435	266	<285	<555	<2100	<1950	323	<132	<90
K-12-B	2-4'	2700	<345	296	<405	<1140	<4800	<4349	309	<150	<77
K-12-C	25-27'	715	<113	349	350	<225	<675	<735	344	<112	<118

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
K-13-A	28-30'	45	<44	<94	<148	<240	<825	<840	227	<92	<74
K-13-B	30-32'	<38	<41	<95	<145	<240	<810	<810	240	<90	<80
K-14-A	0-1'	1098	<165	695	<255	<465	<1950	<1800	500	<104	<104
K-14-B	20-22'	2357	<195	363	<146	<180	<405	<510	<210	<139	<106
K-14-C	22-24'	2844	<210	209	258	<210	<510	<585	<165	<165	<125
K-14-C2	22-24'	617	<97	100	184	<180	<450	<465	286	<180	<102
K-15-A	24-26'	366	<79	121	<134	<195	<645	<660	221	<114	<82
K-15-B	26-28'	83	<48	271	<150	<210	<660	<675	249	<111	<84
K-16-A	0-2'	5892	<435	532	<315	<465	<1470	<1484	511	<165	<165
K-16-B	2-4'	2717	<255	1952	<300	<285	<720	<750	372	<133	<89
K-17-A	0-2'	2484	<210	235	<165	<240	<645	<705	234	<91	<122
K-17-B	2-4'	4562	<270	173	<165	<225	<480	<615	265	<109	<126
L-13-A	12-16'	97	<51	<91	<144	<210	<705	<765	362	<113	<109
L-13-B	16-20'	65	<48	<89	<142	<240	<855	<915	306	<122	<77
L-14-A	24-26'	86	<58	<122	286	<360	<1274	<1424	344	<149	<113
L-14-B	26-27'	153	<69	<113	<195	<360	<1290	<1380	446	<90	<54
L-14-B2	26-27'	127	<65	<116	<180	<360	<1334	<1350	361	<126	<89
L-15-A	0-1'	613	<116	392	<255	2320	<1185	<1185	374	<124	<60
L-15-B	16-18'	212	<64	389	753	<255	<735	<795	403	<123	<81
L-15-C	18-20'	<42	<44	<105	<165	<315	<1215	<1380	550	<148	<134
L-16-A	8-10'	371	<109	<131	<210	<480	<1800	<1800	336	<105	<57
L-16-B	10-12'	46	<50	<107	<180	<330	<1215	<1394	367	<137	<74
L-16-B2	10-12'	<41	<44	<100	<165	<315	<1155	<1364	237	<105	<87
L-17-A	0-2'	813	<150	243	<210	<330	<1125	<1274	346	<150	<73
L-17-B	2-4'	1467	<195	327	<210	<285	<855	<930	315	<121	<94
M-02-A	0-2'	797	<128	182	<165	<285	<960	<1035	415	<88	<84
M-02-B	2-3'	430	<95	<107	<165	<285	<1050	<1095	224	<83	<109
M-13-A	0-1'	242	<92	199	<210	<315	<1095	<1050	243	<138	<77
M-13-B	4-6'	86	<46	<81	<131	<210	<690	<735	368	<128	<78
M-13-C	6-8'	187	<79	140	<180	<300	<1065	<1020	259	<121	<96
M-14-A	13-14'	<32	<35	<86	<147	<225	<690	<705	<195	<105	<102

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
M-14-A2	13-14'	<28	<30	<77	<127	<210	<675	<720	266	<131	<84
M-14-AX	0-2'	721	<124	139	<165	<285	<1005	<1050	499	<144	<111
M-14-B	14-16'	<36	<41	<87	<148	<270	<1005	<1020	278	<150	<97
M-15-A	0-1'	1296	<180	299	285	<405	<1500	<1470	230	<147	<105
M-15-B	15-16'	77	<49	<87	<134	<240	<810	<855	383	<147	<103
M-15-C	16-20'	33	<37	<84	<140	<255	<915	<960	352	<113	<48
M-15-C2	16-20'	<42	<48	<97	<150	<285	<1065	<1065	355	<143	<83
M-16-A	0-2'	686	<129	153	<165	<255	<885	<915	387	<165	<83
M-16-B	16-18'	174	<78	<108	<165	<330	<1230	<1155	612	<165	<137
M-16-C	18-20'	479	<119	<120	<180	<360	<1350	<1290	500	<134	<119
N-02-A	0-2'	2169	<180	623	<165	<210	<675	<765	<255	<150	<128
N-11-A	0-1'	2412	<165	307	369	<240	<840	<870	501	<88	<122
N-11-B	5-6'	<36	<41	<100	<180	<270	<855	<915	328	<120	<93
N-11-C	6-8'	<35	<40	<96	<148	<225	<765	<810	325	<114	<87
N-14-A	8-10'	<28	<30	<73	<114	<195	<645	<720	447	<136	<74
N-14-AX	0-2'	1071	<165	233	<210	<450	<1650	<1500	306	<85	<79
N-14-B	10-12'	<32	<36	<83	<131	<210	<735	<795	195	<98	<50
N-15-A	12-14'	<33	<38	<90	<144	<240	<780	<840	<150	<89	<28
N-15-AX	0-2'	1512	<165	326	<180	<285	<960	<1005	269	<105	<80
N-15-B	14-16'	37	<38	<79	<140	<240	<810	<885	452	<93	<89
N-16-A	0-2'	<30	<35	<85	<140	<210	<615	<645	224	<109	<96
N-16-A2	0-2'	32	<39	<79	<120	<180	<600	<645	<150	<113	<101
N-16-B	2-4'	<31	<37	<81	<124	<195	<585	<645	346	<150	<117
O-02-A	0-2'	2484	<225	995	<225	<285	<1020	<1050	892	<83	<96
O-02-B	2-4'	14400	<600	1924	<345	<420	<1410	<1484	441	<142	<107
O-11-A	0-2'	695	<129	246	254	<330	<1215	<1230	435	<117	<135
O-11-B	2-4'	409	128	113	<180	<330	<1230	<1230	488	<123	<123
O-11-C	4-6'	<26	52	<87	<141	<225	<810	<810	336	<62	<58
O-11-D	6-8'	<35	<42	<105	<180	<285	<945	<975	383	<121	<59
O-14-A	0-1'	775	<135	161	<180	<300	<1140	<1095	392	<97	<96
O-14-B	4-6'	237	<89	137	<195	<330	<1095	<1095	<195	<104	<102

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
O-14-C	8-10'	257	<97	133	<180	<315	<1095	<1140	337	<101	<104
O-15-A	6-8'	<34	<38	<87	<149	<255	<855	<870	282	<123	<66
O-15-AX	0-2'	1737	<195	<108	<165	<345	<1320	<1304	433	<135	<84
O-15-B	8-10'	<34	<42	<92	<147	<270	<945	<1005	295	<102	<77
O-16-A	0-2'	1278	<165	382	<180	<270	<930	<1035	195	<101	<86
O-16-B	2-4'	418	<96	203	<165	<255	<855	<900	299	<92	<53
O-16-B2	2-4'	359	<86	153	<150	<225	<765	<885	201	<98	<64
O-17-A	0-2'	208	<82	<114	<195	<330	<1215	<1200	331	<107	<89
O-17-B	2-4'	65	<62	<120	<195	<345	<1230	<1215	657	<94	<79
P-02-A	0-2'	1233	<146	545	<165	<240	<885	<915	331	<126	<91
P-02-B	2-3'	1458	<180	706	<210	<330	<1140	<1110	309	<107	<87
P-02-B2	2-3'	1548	<195	568	<225	<330	<1155	<1185	453	<139	<117
P-11-A	0-2'	3706	<300	329	<240	<360	<1260	<1304	292	<119	<88
P-11-B	2-4'	205	<72	97	<150	<255	<825	<900	277	<118	<64
P-11-C	4-6'	78	<52	<105	306	<255	<810	<855	<138	<95	<76
P-11-D	6-8'	<36	<43	<92	256	<255	<840	<885	202	<77	<73
P-12-A	0-2'	125	<58	<102	437	<285	<960	<915	498	<125	<108
P-12-B	2-4'	<37	<38	133	539	<255	<840	<855	343	<128	<79
P-12-C	4-6'	<33	<39	<92	202	<240	<795	<795	255	<78	<52
P-12-D	6-8'	<30	<37	<93	271	<240	<750	<780	282	<106	<84
P-14-A	2-4'	34	<38	<82	<137	<240	<795	<840	<133	<85	<82
P-14-B	4-6'	<34	<37	<76	<133	<240	<840	<900	214	<128	<104
P-14-C	6-8'	<36	<40	<88	<138	<255	<915	<930	<165	<90	<111
P-14-D	8-10'	<36	<40	<95	<149	<255	<885	<900	260	<119	<87
P-15-A	0-2'	1493	<165	<92	<149	<270	<945	<870	<210	<113	<90
P-15-B	2-4'	<36	<42	<98	450	<270	<915	<930	171	<99	<81
P-15-C	6-8	<31	<37	<91	286	<255	<900	<945	167	<122	<80
P-15-D	8-10	<39	<44	<103	<165	<315	<1185	<1170	<180	<117	<83
P-15-D2	8-10	<44	<49	<117	<180	<360	<1364	<1350	272	<123	<131
P-16-A	0-2'	105	<68	<121	<225	<405	<1380	<1334	496	<122	<41
P-16-B	2-4'	<37	46	<99	<165	<285	<1020	<1020	344	<145	<84

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
P-16-C	4-6'	<32	<36	<92	<150	<240	<810	<855	251	<101	<80
P-17-A	0-2'	42	<49	<99	<147	<270	<960	<1005	391	<99	<117
P-17-B	2-4'	100	<68	156	<180	<300	<1050	<1170	453	<101	<90
P-17-C	4-6'	133	<68	<114	<195	<330	<1125	<1125	261	<100	<128
Q-12-A	0-2'	1413	258	195	<330	<915	<3900	<3449	<240	<127	<83
Q-12-B	2-4'	67	<48	<94	202	<270	<975	<945	261	<90	<42
Q-12-C	4-6'	<33	<38	<85	290	<240	<765	<795	<150	<105	<93
Q-12-D	6-8'	<30	<34	<79	<136	<210	<735	<750	308	<116	<104
Q-13-A	0-2'	765	<126	<107	<165	<345	<1410	<1320	220	<140	<93
Q-13-B	2-4'	74	<68	<135	<255	<690	<3000	<2700	<180	<132	<107
Q-13-C	4-6'	<30	<35	<85	253	<240	<765	<780	<165	<73	<92
Q-13-D	6-8'	33	<38	<86	<145	<240	<795	<780	219	<84	<79
Q-13-D2	6-8'	<35	<38	<89	<148	<240	<780	<810	215	<111	<92
Q-14-A	0-2'	848	<133	<103	<150	<270	<960	<975	296	<108	<64
Q-14-B	2-4'	<38	<44	<90	<150	<270	<945	<945	286	<85	<103
Q-14-C	4-6'	<39	<39	<85	<141	<255	<900	<870	<149	<96	<59
Q-16-A	0-1'	129	<67	175	253	<300	<1050	<1185	235	<138	<77
Q-16-B	1-2'	211	<78	246	<195	<300	<1065	<1200	330	<98	<88
Q-17-A	0-2'	52	<52	103	<165	<285	<960	<1005	390	<99	<110
Q-17-B	2-4'	44	<44	<100	<165	<255	<840	<900	395	<121	<88
Q-17-C	8-10'	<44	<50	<105	<165	<255	<930	<990	287	<136	<71
R-10-A	0-2'	335	<84	283	<150	<255	<900	<900	361	<117	<85
R-10-B	2-4'	<39	<41	<96	<165	<270	<945	<990	216	<96	<79
R-10-C	4-6'	41	<43	<94	<143	<255	<870	<870	<165	<74	<64
R-11-A	0-2'	275	<77	<102	522	<285	<930	<915	325	<126	<60
R-11-B	2-4'	<34	<37	<91	344	<240	<765	<795	259	<139	<88
R-11-C	4-6'	<33	<35	<87	216	<225	<720	<750	356	<113	<90
R-11-D	6-8'	<29	<33	<74	<123	<195	<630	<660	330	<99	<59
R-12-A	0-2'	779	<142	<123	<195	<435	<1800	<1650	243	<119	<93
R-12-B	2-4'	<25	<31	<73	158	<195	<690	<705	278	<86	<78
R-12-C	4-6'	<34	<38	<87	248	<240	<855	<840	198	<86	<89

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
R-13-A	0-2'	1035	<165	233	<240	<525	<2100	<1950	<150	<116	<98
R-13-B	2-4'	50	<42	<80	<132	<225	<780	<855	183	<119	<79
R-13-C	4-6'	84	<52	<90	331	<270	<915	<945	<195	<115	<90
R-13-D	6-8'	<33	<39	<92	<148	<255	<825	<885	285	<125	<87
R-14-A	0-2'	852	238	<134	<240	<615	<2549	<2400	232	<141	<120
R-14-B	2-4'	<45	<50	<101	<180	<375	<1470	<1380	234	<96	<75
R-14-C	4-6'	<36	<41	<92	<145	<270	<960	<960	176	<107	<79
R-15-A	0-4'	753	<146	221	<195	<330	<1155	<1125	<165	<130	<119
R-15-B	4-8'	<36	<39	<88	<142	<240	<750	<795	<180	<125	<87
R-15-C	8-10'	<31	<37	<95	<165	<255	<900	<915	<146	<93	<69
R-15-D	10-12'	<31	<40	<93	<150	<270	<930	<945	<133	<112	<99
R-16-A	0-1'	373	<91	184	409	<285	<1020	<1005	398	<123	<103
R-17-A	0-2'	115	<51	135	<140	<240	<840	<885	317	<165	<84
R-17-B	2-4'	70	<50	166	<150	<255	<900	<945	291	<165	<97
R-17-C	4-6'	81	<46	<87	<141	<225	<735	<795	503	<150	<100
R-17-C2	4-6'	48	<54	<97	<180	<285	<900	<945	266	<109	<109
S-13-A	0-2'	509	<111	187	<165	<315	<1215	<1185	371	<127	<63
S-13-B	2-4'	<38	<41	217	<165	<255	<825	<825	386	<118	<86
S-13-C	4-6'	<38	<46	<103	<150	<270	<930	<960	<180	<102	<77
S-14-A	0-2'	1215	<180	302	<225	<465	<1800	<1650	328	<147	<82
S-14-B	2-4'	<38	<43	<96	<150	<270	<885	<930	341	<133	<129
S-14-C	4-6'	<37	<43	<101	277	<300	<1020	<1005	200	<127	<82
S-14-C2	4-6'	<36	<41	<94	<165	<270	<975	<975	<180	<103	<75
S-15-A	0-2'	603	<109	163	<150	<330	<1230	<1170	235	<128	<71
S-15-B	2-4'	36	<39	<87	<135	<210	<720	<735	320	<105	<76
S-15-C	4-6'	<31	<38	<80	<130	<255	<930	<960	217	<85	<81
S-15-D	6-8'	<32	<33	<84	<147	<240	<840	<870	273	<74	<105
S-16-A	0-2'	1206	<180	186	<210	<360	<1334	<1350	305	<130	<102
S-16-B	2-4'	4680	<390	469	<270	<420	<1290	<1410	278	<97	<65
S-16-C	4-6'	<40	<45	<103	<165	<300	<1140	<1170	<195	<69	<69
S-17-A	0-2'	16197	<810	3449	1633	<630	<1950	<1950	675	<195	<144

Table 2
Summary of Corrected XRF Soil Analytical Results

Sample ID	Sample Depth	Lead (d)	Arsenic	Zinc (e)	Copper (f)	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
S-17-B	4-8'	680	<142	1218	<270	<345	<1230	<1244	0	0	0
S-17-B Rep	4-8'	728	<145	1228	<255	<330	<1200	<1230	245	<60	<92
SH-01-A	0-1'	371	<84	140	<144	<255	<885	<900	506	<116	<95
SH-01-A2	0-1'	203	<63	160	<147	<270	<930	<945	418	<110	<69
SH-02-A	0-1'	150	<60	122	286	<270	<915	1030	412	<120	<85
T-15-A	0-2'	95	<54	<89	<149	<255	<855	<915	273	<106	<66
T-15-B	2-4'	<26	<34	<88	<147	<255	<810	<795	<180	<124	<68
T-15-C	4-6'	<37	<42	<94	<165	<270	<945	<960	<165	<82	<41
T-15-C2	4-6'	<35	<39	<93	207	<285	<960	<990	252	<112	<92
T-16-A	0-2'	37	<46	89	<150	<225	<750	<780	512	<118	<99
T-16-A2	0-2'	<55	<65	<114	<195	<345	<1155	<1244	672	<115	<77
T-16-B	2-4'	<45	<50	<110	<180	<285	<990	<1035	271	<125	<71
T-16-C	4-6'	<40	<48	<112	<195	<345	<1200	<1244	281	<109	<119
T-17-A	0-2'	771	<132	359	<195	<345	<1290	<1260	309	<124	<67
T-17-B	2-4'	384	<96	352	<180	<285	<945	<1050	228	<91	<99
T-17-C	4-6'	<36	<41	<90	<143	<210	<675	<765	286	<127	<51
T-17-C2	4-6'	<31	<37	<89	<150	<225	<645	<720	458	<101	<77
T-18-A	0-2'	401	<83	554	<165	<255	<915	<960	266	<100	<57
T-18-B	2-4'	61	<45	<87	<137	<210	<690	<690	<150	<120	<70
U-17-A	0-2'	161	<63	<95	<144	<240	<840	<915	346	<102	<67
U-17-B	2-4'	122	<54	<86	<148	<225	<765	<780	380	<122	<43

Notes:
(a) Suffix of "2" identifies a duplicate sample
(b) Suffix of "R" or "Rep" identifies a replicate sample
(c) "<" The metal was not detected at the specified detection limit
(d) A correction factor of 0.90 for lead was developed based on a the slope of a linear regression line
(e) A correction factor of 0.93 for ziinc was developed based on a the slope of a linear regression line
(f) A correction factor of 1.15 for copper was developed based on a the slope of a linear regression line
(g) Error - the XRF result was in error
Correction factors were not calculated for As, Ni, Co, Cr, Ba, Sb or Cd due to either an insufficient number of detected results or low values for the correlation coefficients

Table 3
Summary of Laboratory Analytical Data

Chemical Name Screening Level Unit Sample ID	Antimony 4100 mg/kg	Arsenic 19 mg/kg	Barium 720000 mg/kg	Cadmium 10000 mg/kg	Chromium (total) 31000 (1) mg/kg	Cobalt 200000 mg/kg	Copper 410000 mg/kg	Lead 400 mg/kg	Nickel 200000 mg/kg	Zinc 3100000 mg/kg
C-8-A	NA	11.3	NA	NA	NA	NA	NA	1200	NA	NA
C-8-B	NA	15.8	NA	NA	NA	NA	NA	118	NA	NA
C-9-A	NA	16.4	NA	NA	NA	NA	NA	293	NA	NA
C-9-B	NA	11.3	NA	NA	NA	NA	NA	55.5	NA	NA
C-10-A	NA	15.1	NA	NA	NA	NA	NA	311	NA	NA
C-10-B	NA	11.6	NA	NA	NA	NA	NA	51.9	NA	NA
C-11-A	NA	14.6	NA	NA	NA	NA	NA	108	NA	NA
C-11-A2	NA	17.2	NA	NA	NA	NA	NA	104	NA	NA
C-11-B	NA	6.9	NA	NA	NA	NA	NA	14.3	NA	NA
C-12-A	NA	9.9	NA	NA	NA	NA	NA	50.8	NA	NA
C-12-B	NA	9.4	NA	NA	NA	NA	NA	17.3	NA	NA
C-13-A	NA	12.1	NA	NA	NA	NA	NA	69.9	NA	NA
C-13-B	NA	7.6	NA	NA	NA	NA	NA	21.7	NA	NA
C-14-A	NA	14.3	NA	NA	NA	NA	NA	271	NA	NA
C-14-B	NA	13.6	NA	NA	NA	NA	NA	282	NA	NA
C-15-A	NA	8.9	NA	NA	NA	NA	NA	85.3	NA	NA
C-15-B	NA	13	NA	NA	NA	NA	NA	90.6	NA	NA
C-16-A	NA	10.1	NA	NA	NA	NA	NA	99.9	NA	NA
C-16-B	NA	10	NA	NA	NA	NA	NA	47.3	NA	NA
D-02-A	R	9.8	135	0.78 K	40.8 K	23.8	61.7 K	92.7	43.1	241
D-02-A2	R	9.6	127	0.78 K	37.2 K	24.6	59.8 K	79.2	42.6	235
D-07-A	0.34 B	8.8	79.3	0.50 U	12.2 K	4.1	94.9 K	68.9	9.3	47.7
D-08-B	0.33 L	17.6	137	0.81 K	27.8 J	17.4	128	181 L	27.9 J	137 K
D-11-B	R	17.3	162	1.1 K	46.4 J	19.5	205	77.3 L	43.8 J	168 K
D-11-B2	0.39 L	22.8 *	166	1.2 K	133 J	25.5	259	112 L	83.9 J	166 K

Table 3
Summary of Laboratory Analytical Data

Chemical Name Screening Level Unit Sample ID	Antimony 4100 mg/kg	Arsenic 19 mg/kg	Barium 720000 mg/kg	Cadmium 10000 mg/kg	Chromium (total) 31000 (1) mg/kg	Cobalt 200000 mg/kg	Copper 410000 mg/kg	Lead 400 mg/kg	Nickel 200000 mg/kg	Zinc 3100000 mg/kg
D-13-A	R	15.1	133	0.93 K	60.7 J	16.0	53.0	655 L *	39.7 J	136 K
D-14-A	R	9.6	161	0.79 K	67.9 J	18.4	46.2	645 L *	44.4 J	120 K
D-14-B	R	11.1	144	0.80 K	42.2 J	17.2	81.8	584 L *	29.5 J	122 K
D-14-C	R	8.9	191	0.53 K	49.5 J	15.7	174	26.2 L	35.6 J	94.0 K
D-15-A	1.0 UL	14.5	131	0.61 K	25.4	12.7	48.2 J	724 *	26.3	154 J
D-16-A	1.0 UL	12.2	147	0.43 K	27.6	12.7	170 J	404 *	22.7	127 J
D-17-A	1.0 UL	11.1	93.3	0.38 K	21.3	10.4	175 J	158	18.1	107 J
D-2-B	0.54 B	8.8	113	0.71 K	48.6 K	18.6	164 K	130	33.7	213
E-03-B	0.83 L	17.6	168	3.0 L	77.0 K	18.2	208 J	399 J	50.0	673 K
E-05-A	2.0 UL	21.1 *	164	2.6	79.1	19.6	292	372	46.1 L	380 J
E-08-B	1.0 UL	15.4	124	0.20	18.7	16.4	117	52.1	27.1 L	134 J
E-09-A	0.32 B	9.5	83.4	0.50 U	26.1	8.8	157 J	239	15.2	57.7
E-09-B	1.0 UL	30.3 *	141	0.82	30.9	16.3	174 J	185	34.5	177
E-09-C	0.37 B	18.8	298	0.28 K	24.8	17.1	163 J	372	27.5	220 J
E-12-C	1.0 UL	7.3	75.8	0.50 U	18.9	14.7	33.6 J	24.2	20.9	67.1 J
E-12-C2	1.0 UL	6.9	67.7	0.50 U	19.5	12.4	79.5 J	16.4	20.1	66.4 J
E-7-B	1.0 UL	20.0 *	168	0.38 L	34.6 K	16.0	320 J	162 J	33.3	194 K
E-7-B2	0.37 L	18.6	162	0.43 L	27.4 K	14.2	161 J	154 J	28.9	178 K
F-03-A	1.0 UL	11.8	157	1.2 L	37.0 K	31.9	56.2 J	353 J	57.1	371 K
F-08-D	1.0 UL	15.1	136	0.17 L	32.5 K	14.7	283 J	243 J	31.0	185 K
F-12-A	1.0 UL	11.7	191	0.18 L	47.3 K	17.9	108 J	427 J *	38.2	155 K
F-13-D	R	10.1	146	0.79 K	25.5 K	15.5	42.1 K	2020 *	26.6	147
G-03-C	0.65 L	18.5	155	2.0 L	66.0 K	26.6	321 J	348 J	54.4	463 K
G-04-A	1.0 UL	13.2	182	1.1 L	34.5 K	37.6	113 J	210 J	62.7	346 K
G-13-A	R	8.6	102	0.25 K	27.0 K	13.6	103 K	413 *	24.6	111

Table 3
Summary of Laboratory Analytical Data

Chemical Name Screening Level Unit Sample ID	Antimony 4100 mg/kg	Arsenic 19 mg/kg	Barium 720000 mg/kg	Cadmium 10000 mg/kg	Chromium (total) 31000 (1) mg/kg	Cobalt 200000 mg/kg	Copper 410000 mg/kg	Lead 400 mg/kg	Nickel 200000 mg/kg	Zinc 3100000 mg/kg
G-15-D	1.0 UL	9.4	241	0.12 K	26.8	15.1	76.3 J	153	30.2	105 J
G-16-B	0.35 L	12.3	158	0.96 K	42.4 J	16.2	167	161 L	29.1 J	160 K
H-14-B	1.0 UL	8.7	284	0.18 L	71.1 K	15.3	185 J	711 J *	49.1	252 K
H-16-A	1.0 UL	11.6	107	0.19	127	22.4	215	297	74.2 L	153 J
I-11-A	1.0 UL	8.3	116	0.30	24.4	10.5	110	339	17.9 L	203 J
I-15-A	R	4.7	47.7	0.49 K	15.8 K	23.0	32.4 K	381	101	66.6
I-17-A	0.48 L	13.7	143	1.2 K	45.0 J	13.9	378	290 L	65.7 J	298 K
I-17-B	R	10.7	158	1.1 K	30.6 J	13.4	58.3	565 L *	24.2 J	319 K
I-17-B2	0.46 L	11.2	159	1.0 K	77.9 J	16.9	43.6	460 L *	46.2 J	232 K
J-13-A	0.57 L	31.1 *	645	1.6	69.8	17.4	460	2270 *	64.7 L	288 J
J-13-C	1.0 UL	7.8	161	0.50 UL	27.6 K	17.1	84.1 J	183 J	29.4	149 K
J-14-B	R	6.6	94.2	0.16 K	18.8 K	10.9	218 K	355	15.9 K	113
J-14-C	R	6.3	105	0.13 K	20.3 K	11.4	175 K	147	18.0	80.8
J-17-A	R	8.9	70.2	0.48 K	24.5 K	11.0	49.1 K	2530 *	17.8	160
K-11-A	1.0 UL	7.4	67.6	0.17 K	12.8	8.8	59.1 J	68.8	14.2	73.0
K-11-B	1.0 UL	8.4	69.2	0.15 K	21.1	11.2	166 J	144	20.8	82.3 J
K-12-C	0.32 L	8.5	105	0.58 L	54.3 K	24.2	331 J	571 J *	33.6	374 K
K-15-A	R	10.8	89.1	0.60 K	20.3 J	11.5	49.7	487 L *	18.9 J	146 K
L-13-A	1.0 UL	6.7	133	0.50 UL	17.8 K	9.5	125 J	103 J	16.8	75.7 K
L-14-A	R	13.0	194	0.59 K	43.0 J	26.6	157	83.9 L	34.3 J	112 K
L-14-B	1.0 UL	12.5	114	0.50 UL	78.6 K	26.4	160	141 J	48.1	120 K
L-14-B2	1.0 UL	11.4	143	0.50 UL	47.8 K	27.9	126	144 J	40.0	135 K
L-15-A	0.94 L	41.6 *	99.9	0.92 L	120 K	295	284 J	574 J *	1900	304 K
L-15-B	0.92 L	7.5	247	2.2 L	22.3 K	10	886 J	203 J	23.7	373 K
L-16-A	2.0 UL	22.4 *	180	0.16 L	57.4	20.9	71.0 J	372 J	46.8	124

Table 3
Summary of Laboratory Analytical Data

Chemical Name Screening Level Unit Sample ID	Antimony 4100 mg/kg	Arsenic 19 mg/kg	Barium 720000 mg/kg	Cadmium 10000 mg/kg	Chromium (total) 31000 (1) mg/kg	Cobalt 200000 mg/kg	Copper 410000 mg/kg	Lead 400 mg/kg	Nickel 200000 mg/kg	Zinc 3100000 mg/kg
L-16-A MS/MSD	1.0 UL	9.0	75.0	0.50 UL	14.3 K	10.6	20.2 J	35.5 J	19.4	65.3 K
L-17-A	1.0 UL	11.2	120	1.1 K	52.4	10.1	136 J	877 *	21.3	283 J
M-13-B	1.0 UL	7.7	84.5	0.50 U	13.1	9.3	74.7 J	60.8	13.6	64.8
M-13-C	0.51 B	42.1 *	66.5	0.19 K	13.3	9.7	180 J	106	13.4	107
M-15-A	0.80 L	44.7 *	128	0.78 L	58.5 K	19.1	283 J	1210 J *	56.2	230 K
M-15-B	0.36 L	10.3	155	0.50 UL	34.6 K	19.2	54.0 J	52.4 J	24.6	88.5 K
M-15-B MS/MSD	1.0 UL	7.1	104	0.50 UL	9.3 K	8.5	9.9 J	15.7 J	12.4	51.8 K
M-16-C	R	9.9	183	0.68 K	26.0 J	18.5	30.8	492 L *	32.9 J	101 K
N-15-A	1.0 UL	7.5	84.0	0.50 UL	27.8 K	10.2	44.5 J	10.0 J	24.0	55.9 K
O-11-A	0.48 L	61.6 *	126	2.4 K	46.8 J	15.8	197	673 L *	36.2 J	255 K
O-11-B	1.1 L	85.2 *	121	1.2 K	23.3 J	10.6	127	347 L	17.2 J	131 K
O-11-C	0.33 L	10.1	60.7	0.26 K	13.2 J	9.5	45.1	10.7 L	18.2 J	44.5 K
O-14-B	0.64 B	12.5	64.1	0.18 K	12.8	10.4	55.5 J	141	14.1	95.7 J
O-14-C	1.0 UL	14.5	62.0	0.21 K	12.7	9.2	51.2 J	161	13.2	98.2
O-16-A	0.64 B	27.2 *	115	0.95 K	41.8	16.9	60.0 J	1380 *	17.1	400
O-16-B	1.0 UL	28.9 *	76.7	0.80 K	33.4	8.5	80.7 J	408 *	16.0	241 J
O-16-B2	1.0 UL	19.6 *	106	0.75 K	42.7	8.2	112	340	15.8	204
P-14-A	1.0 UL	11.6	50.2	0.50 UL	19.8 K	11.6	106 J	31.3 J	19.6	60.0 K
P-15-A	2.1 L	40.4 *	160	0.50 UL	39.5 K	8.8	66.2 J	1470 J *	16.2	53.6 K
P-15-C	1.0 UL	11.2	58.3	0.50 UL	19.8 K	12.6	256 J	12.7 J	20.4	57.8 K
P-15-C MS/MSD	1.0 UL	8.9	34.5	0.50 UL	8.7 K	7.9	11.0 J	8.9	11.5	42.4
P-16-A	0.54 L	11.5	418	0.53 K	26.1 J	9.0	271	92.7 L	23.8 J	81.2 K
P-16-B	0.40 L	14.7	100	0.40 K	61.0 J	13.8	157	25.2 L	39.7 J	73.1 K
P-16-C	R	9.0	77.0	0.30 K	29.5 J	12.2	221	11.1 L	19.2 J	54.1 K
Q-12-A	1.5 L	109 *	64.6	0.50 UL	26.3 K	7.1	180 J	1250 J *	17.8	42.2 K

Table 3
Summary of Laboratory Analytical Data

Chemical Name	Antimony	Arsenic	Barium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Nickel	Zinc
Screening Level	4100	19	720000	10000	31000 (1)	200000	410000	400	200000	3100000
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample ID										
R-10-A	0.40 L	16.6	94.2	1.7 K	22.6 J	13.3	73.5	361 L	20.8 J	219 K
R-10-C	1.0 UL	10.2	35.3	0.28 K	8.0 J	8.0	12.6	9.3	10.9 J	40.4
R-11-A	0.59 L	22.4 *	102	0.50 UL	29.5 K	7.8	565 J	294 J	13.1	56.1 K
R-14-A	2.0 L	38.7 *	90.0	0.83 K	29.6 J	12.5	100	799 L *	21.6 J	100 K
R-14-B	0.50 L	10.2	67.5	0.46 K	25.1 J	6.7	104	20.9 L	18.4 J	50.6 K
R-16-A	0.58 B	11.8	86.1	0.52 K	19.8 K	9.5	293 K	387	15.6	146
S-13-A	1.2 L	21.9 *	103	0.89 K	17.1 J	9.9	44.1	426 L *	17.0 J	140 K
S-15-A	2.1 L	66.5 *	83.4	1.3 K	23.9 J	9.5	90.3	522 L *	16.5 J	114 K
T-17-A	0.93 L	21.0 *	136	1.9 K	32.8 J	10.9	71.6	749 L *	22.4 J	337 K
T-17-B	0.52 L	14.7	131	0.73 K	47.7 J	13.7	104	350 L	30.9 J	495 K
T-17-C	R	5.4	198	0.18 K	21.3	8.0	175	10.2 L	14.6	52.9 K
T-17-C2	R	5.4	129	0.17 K	17.1	7.0	204	11.4 L	12.4	42.3 K
T-18-A	0.94 B	19.7 *	108	2.5 K	36.8	8.4	177 J	385	19.4	502

Notes
(1) Screening level for Hexavalent Chromium
* = Exceeds Screening Level
NA = Metal was not analyzed.
U = Not detected.
R = Unusable result.
B = Not detected substantially above the level reported in the laboratory or field blanks.
J = Analyte present. Reported value is estimated.
K = Analyte present. Reported value may be biased high.
L = Analyte present. Reported value may be biased low.
UL = Not detected. Quanitation limit is probably higher.

Table 4
Polychlorinated Biphenyl Field Screening Results

Sample ID	Result (ppm)	Depth		Sample ID	Result (ppm)	Depth
E-3-A	3.86	2-4'		O-11-A	0.33	0-2'
E-3-B	0.15	8-10'		O-11-B	0.08	2-4'
E-6-A	0.51	2-4'		O-14-A	2.73	0-1'
E-6-B	0.31	4-6'		O-14-B	2.68	4-6'
E-9-B	< LOD [d]	2-4'		O-17-B	6.87	2-4'
E-9-C	< LOD	4-6'		O-17-A	3.34	0-2'
E-12-A	< LOD	2-4'		P-11-A	< LOD	0-2'
E-12-B	< LOD	4-6'		P-11-B	0.08	2-4'
G-2-A	3.71	0-2'		P-11-B2	1.68	2-4'
G-2-B	11.7	2-4'		P-12-B	21.5	2-4'
G-2-BREP	18.8	2-4'		P-12-A	0.43	0-2'
G-5-A	0.88	4-8'		Q-12-A	< LOD	0-2'
G-5-B	1.1	8-10'		Q-12-B	8.65	2-4'
G-5-B1R	1.05	8-10'		Q-13-A	0.51	0-2'
G-8-A	0.29	0-1'		Q-13-B	0.91	2-4'
G-11-A	< LOD	0-2'		Q-14-A	2.55	0-2'
G-11-B	< LOD	8-10'		Q-14-AR	3.52	0-2'
G-14-A	0.71	0-2'		Q-14-B	3.06	2-4'
G-14-B	0.12	2-4'		R-10-A	< LOD	0-2'
I-10-A	5.08	0-1'		R-10-B	< LOD	2-4'
I-10-AD	4.75	0-1'		R-10-B2	< LOD	2-4'
I-13-A	< LOD	0-1'		R-11-A	< LOD	0-2'
I-13-B	18	26-27'		R-11-B	< LOD	2-4'
I-13-BR	18.2	26-27'		R-12-A	5.43	0-2'
I-16-A	2.26	0-2'		R-12-B	< LOD	2-4'
K-02-A	11.5	0-2'		R-12-BR	< LOD	2-4'
K-11-A	< LOD	0-2'		R-13-A	< LOD	0-2'
K-11-B	0.02	2-4'		R-13-B	< LOD	2-4'
K-14-A	< LOD	0-1'		R-14-A	4.02	0-2'
K-14-B	0.64	20-22'		R-14-B	44	0-2'
K-17-A	3.03	0-2'		R-15-A	< LOD	0-4'
K-17-B	1.74	2-4'		R-15-B	< LOD	4-8'
M-2-A	2.7	0-2'		R-15-BD	< LOD	4-8'
M-2-A2 [a]	4.81	0-2'		S-13-A	< LOD	0-2'
M-2-B	4.38	2-3'		S-13-B	< LOD	2-4'
M-13-A	2.27	0-1'		S-14-A	< LOD	0-2'
M-13-AD	6.57	0-1'		S-14-AR	0.74	0-2'
M-13-B	5.86	4-6'		S-14-A2	2.97	0-2'
M-16-B	24.3	16-18'		S-14-B	3.35	2-4'
N-11-A	< LOD	0-1'		S-15-A	< LOD	0-2'
N-11-AD [a]	< LOD	0-1'		S-15-B	< LOD	2-4'
N-11-B	< LOD	5-6'		S-15-BR [b]	< LOD	2-4'
O-02-A	7.31	0-2'		S-17-B	1.23	4-8'
O-02-B	5.41	2-4'		S-17-A	15.2	0-2'
O-02-BREP [b]	6.47	2-4'		I-B-8	9.13	N/A

Notes:
(a) - Suffix of "2" or "D" identifies a duplicate sample.
(b) - Suffix of "R" or "REP" identifies a replicate sample.
(c) - Sample "IB8" is a interior building sample that was collected near grid node J8.
(d) - "< LOD" - PCBs were not detected at concentrations greater than the instrument's detection limit

Table 5
Summary of Laboratory PCB Results

Chemical Name Screening Level Unit Sample ID	Aroclor 1016 NA ug/kg	Aroclor 1221 NA ug/kg	Aroclor 1232 NA ug/kg	Aroclor 1242 NA ug/kg	Aroclor 1248 NA ug/kg	Aroclor 1254 NA ug/kg	Aroclor 1260 NA ug/kg	Total PCBs (a) 10000 ug/kg
E-03-A-PCB	240 U (b)	240 U	240 U	240 U	1200 K (d)	3800 K	2000 K	7000
G-02-B-PCB	45 U	45 U	45 U	45 U	45 U	30 J (c)	49	79
G-05-B-PCB	48 U	48 U	48 U	48 U	48 U	48 U	48 U	
G-11-B-PCB	40 U	40 U	40 U	40 U	40 U	40 U	40 U	
K-02-A-PCB	160 UJ (e)	160 UJ	160 UJ	160 UJ	160 UJ	160 UJ	3100 J	3100
M-02-A-PCB	38 U	38 U	38 U	38 U	38 U	38 U	87	87
M-02-A-PCB-2 (f)	38 U	38 U	38 U	38 U	38 U	38 U	100	100
M-16-B-PCB	39 U	39 U	39 U	39 U	39 U	39 U	39 U	
O-02-A-PCB	110 U	110 U	110 U	110 U	110 U	630 K	920 J	1550
S-14-B-PCB	43 U	43 U	43 U	43 U	43 U	43 U	43 U	
S-17-B-PCB	44 U	44 U	44 U	790	760	44 U	44 U	1550

Notes:
(a) Calculated value; sum of individual detected Aroclor results
* = Exceeds Screening Level
(b) U = Not detected at the specified detection limit.
(c) J = Analyte present. Reported value is estimated.
(d) K = Analyte is present; reported value may be biased high
(e) UJ = Not detected; quanitation limit is estimated.
(f) Suffix of "2" identifies a duplicate sample

Table 6
Summary of Corrected XRF Sediment Analytical Results

Sample ID	Sample Depth	Lead [f]	Arsenic	Zinc [g]	Copper [h]	Nickel	Cobalt	Chromium	Barium	Antimony	Cadmium
Marks Run Samples											
SDMR01A (c)	2-4"	84	<52 (a)	142	<139	<255	<1005	<1020	279	<115	<61
SDMR02A	2-4"	85	<59	135	<165	<330	<1140	<1230	277	<98	<121
SDMR03A	2-4"	67	<46	<84	<128	<255	<885	<900	308	<97	<85
SDMR04A	2-4"	66	<49	92	<139	<240	<825	<870	278	<119	<72
SDMR05A	2-4"	43	<43	88	<140	<240	<810	<855	210	<95	<79
SDMR06A	2-4"	583	<98	159	<135	<225	<780	<795	<225	<123	<98
SDMR07A	2-4"	75	<49	121	<145	<255	<960	<960	426	<71	<58
SDMR08A	2-4"	110	<52	<87	<133	<255	<900	<930	332	<129	<65
SDMR09A	4-6"	63	<48	154	<165	<270	<990	<1050	293	<110	<97
SDMR10A	1-3"	138	<63	96	<146	<270	<990	<960	288	<128	<64
SDMR11A	2-4"	<32	<36	95	<134	<255	<945	<1020	227	<128	<89
SDMR12A	2-4"	<46	<48	<113	<180	<375	<1454	<1500	450	<210	<144
Ohio River Samples											
SDOH01A (d)	2-4"	35	<42	198	<148	<270	<915	<960	<165	<98	<82
SDOH03A	3-5"	1314	<180	<128	<195	<390	<1500	<1470	<180	<91	<84
SDOH04A	1-3"	74	<54	152	<150	<300	<1110	<1080	272	<90	<64
SDOH04B	4-6"	113	<64	149	<195	373	<1244	<1200	220	<96	<71
SDOH05A	2-4"	44	<40	175	<140	<255	<900	<915	315	<165	<110
SDOH05B	9-11"	45	<43	244	<147	<285	<1005	<1065	439	<116	<107

Notes:
(a) "<" The metal was not detected at the specified detection limit
(f) A correction factor of 0.90 for lead was developed based on a the slope of a linear regression line
(g) A correction factor of 0.93 for ziinc was developed based on a the slope of a linear regression line
(h) A correction factor of 1.15 for copper was developed based on a the slope of a linear regression line
Correction factors were not calculated for As, Ni, Co, Cr, Ba, Sb or Cd due to either an insufficient number of detected results or low values for the correlation coefficients

Table 7
Interior Building Samples

Sample ID / Parameter	Units	IB-2	IB-3	IB-4	IB-5	IB-6	IB-7	Silos
Arsenic	mg/L	0.18	0.24	<0.50	0.23	0.17	0.21	0.19
Barium	mg/L	0.13	0.066	0.011	0.36	1.9	0.09	0.12
Cadmium	mg/L	<0.10 (a)	0.0098	0.009	0.02	0.26	<0.10	<0.10
Chromium	mg/L	<0.50	0.0046	0.06	0.051	0.0036	<0.5	0.0024
Lead	mg/L	7.3	0.077	<0.5	0.062	498	0.58	0.044
Selenium	mg/L	<0.25	0.092	<0.25	0.32	<0.25	<0.25	<0.25
Silver	mg/L	<0.010	<0.010	<0.25	<0.50	<0.010	<0.010	<0.010
Mercury	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Reactive Sulfide	mg/kg	<500	<500	<500	<500	<500	<500	<500
Reactive Cyanide	mg/kg	<200	<200	<200	<200	<200	<200	<200
pH	S.U.	4.7	5.1	6.6	6.8	7.3	7.8	7.7
Ignitability	N/A	No Flash	No Flash	No Flash	No Flash	No Flash	No Flash	No Flash

Notes
(a) "<" analyte was not detected at the specified detection limit

TABLE 8
SUMMARY OF POTENTIAL EXPOSURE ASSUMPTIONS - TRESPASSING TEENAGER
RG CALCULATION - ARSENIC

Parameter	Trespassing Teenager (7 to 18 yrs)
Parameters Used in the Surface Soil Pathway	
Exposure Frequency (days/year)	52 (a)
Exposure Duration (yr)	11 (b)
Soil Ingestion Rate (mg/day)	100 (c)
Skin Contacting Medium (cm^2/day)	4672 (d)
Soil on Skin (mg/cm^2)	0.04 (h)
Body Weight (kg)	47 (e)
Parameters Used in the Outdoor Air Pathway	
Exposure Time (hr/day)	2 (f)
Exposure Frequency (days/year)	52 (a)
Exposure Duration (yr)	11 (b)
Inhalation Rate (m^3/hour)	1.2 (g)
Body Weight (kg)	47 (e)

Notes:
(a) - 1 day per week for 52 weeks (12 months) of the year.
(b) - Trespassing teenager is assumed to range in age from 7 to 18. Therefore, total exposure duration is 11 years.
(c) - USEPA, 1991. Standard Default Exposure Factors.
(d) - USEPA, 1997. Exposure Factors Handbook. Average surface are of head, feet, hands, forearms and lower legs of males and females aged 7 to 18 listed in EFH Tables 6-6 to 6-8.
(e) - USEPA, 1997. Exposure Factors Handbook. Body weight is the average of males and females aged 7 to 18 listed in EFH Table 7-3
(f) - The trespassing teen is assumed to be on-site for two hours.
(g) - USEPA, 1997. Exposure Factors Handbook. Inhalation rates is the value for moderate activity (children) listed in EFH Table 5-23.
(h) - Calculated below.

Body Part	Trespassing Teenager (7 to 18 years)		
	Surface Area 50th percentile (a) (cm^2)	Soil Loading Soccer No. 1 (mg/cm^2) (b)	Total Soil Mass (mg)
Hands	715	0.1100	78.65
Forearms	894	0.0110	9.83
Lower legs	2,068	0.0310	64.11
Head	995	0.0120	11.94
Total	4,672	–	164.53
Area-Weighted Soil Adherence factor (mg/cm2) = Soil mass/Surface area =			0.04

Notes:
(a) - Data from USEPA (1997). Based on average of boys (EFH Table 6-6) and girls (EFH Table 6-7) total body surface area , and mean percentages of total surface area for individual body parts EFH Table 6-8).
(b) - Data from USEPA (1997) Table 6-12. Soccer No. 1 (measurements of boys aged 13-15). Measurements were not collected from feet; therefore, adherence factor is based on hands, forearms, lower legs, and head. This factor is applied to the total body surface area of 6,026 cm^2 calculated in Table 5-4, which includes feet.

TABLE 9
NONCARCINOGENIC DOSE-RESPONSE INFORMATION FOR ARSENIC - ORAL EXPOSURE
RG CALCULATION - ARSENIC

Constituent	CAS Number	Oral Dose-Response Value (mg/kg-day)	Reference (Last Verifed) Type	EPA Confidence Level	Uncertainty Factor	Modifying Factor	Target Organ/ Critical Effect at LOAEL	Study Animal	Study Method
Arsenic	7440-38-2	3.00E-04	IRIS (12/05)	MEDIUM	3	1	Hyperpigmentation and keratosis of the skin and possible vascular complications	HUMAN	ORAL:DRINKING WATER

Notes:
CAS - Chemical Abstracts Service.
LOAEL - Lowest Observed Adverse Effects Level.
IRIS - Integrated Risk Information System, an on-line computer database of toxicological information (USEPA, 2005).
EPA - United States Environmental Protection Agency.

TABLE 10
NONCARCINOGENIC DOSE-RESPONSE INFORMATION FOR ARSENIC - INHALATION EXPOSURE
RG CALCULATION - ARSENIC

Constituent	CAS Number	Inhalation Dose-Response Value (mg/kg-day)	Inhalation Reference Concentration (mg/m^3)	Reference (Last Verified) Type	EPA Confidence Level	Uncertainty Factor	Modifying Factor	Target Organ/ Critical Effect at LOAEL	Study Animal	Study Method
Arsenic	7440-38-2	8.76E-06	3.00E-05	CalEPA (02/05)	NA	NA	NA	Development, cardiovascular system, nervous system	NA	NA

Notes:
CAS - Chemical Abstracts Service.
EPA - United States Environmental Protection Agency.
CalEPA - Office of Environmental Health Hazard Assessment, Reference Exposure Levels (CalEPA, 2005).

TABLE 11
CARCINOGENIC DOSE-RESPONSE INFORMATION FOR ARSENIC - ORAL EXPOSURE
RG CALCULATION - ARSENIC

Constituent	CAS Number	EPA Carcinogen Class	Oral CSF $(mg/kg\text{-}day)^{-1}$	Oral CSF Reference (Last Verified)	Oral CSF Study Animal	Oral CSF Study Method
Arsenic	7440-38-2	A	1.50E+00	IRIS (12/05)	HUMAN	ORAL:DRINKING WATER

Notes:
CAS - Chemical Abstracts Service.
CSF - Cancer Slope Factor.
IRIS - Integrated Risk Information System, an online computer database of toxicological infomation (USEPA, 2005).
EPA - United States Environmental Protection Agency.

TABLE 12
CARCINOGENIC DOSE-RESPONSE INFORMATION FOR ARSENIC - INHALATION EXPOSURE
RG CALCULATION - ARSENIC

Constituent	CAS Number	EPA Carcinogen Class	Inhalation CSF $(mg/kg\text{-}day)^{-1}$ (a)	Unit Risk Factor (m^3/ug)	Inhalation CSF Reference (Last Verified)	Inhalation CSF Study Animal	Inhalation CSF Study Method
Arsenic	7440-38-2	A	1.51E+01	4.30E-03	IRIS (12/05)	HUMAN	INHALATION:OCCUPATIONAL

Notes:
CAS - Chemical Abstracts Service.
CSF - Cancer Slope Factor.
IRIS - Integrated Risk Information System, an online computer database of toxicological infomation (USEPA, 2005).
EPA - United States Environmental Protection Agency.
(a) Converted from inhalation unit risk: URI m^3/ug x (70g x (1day/20m^3) x 1000 ug/mg).

TABLE 13
ABSORPTION ADJUSTMENT FACTORS (AAFs) FOR CHRONIC EXPOSURE
RG CALCULATION - ARSENIC

Constituent	Exposure Route (Medium) (unitless values)							
	Oral Carc.	(Soil) Noncarc.		Dermal Carc.	(Soil) Noncarc.		Inhalation Carc.	Noncarc.
Arsenic	0.4	0.4	(a)	0.03	0.03	(a,b)	1	1

Notes:
Carc. - The value derived is for assessing the compound's carcinogenic potential.
Noncarc. - The value derived is for assessing the compound's noncarcinogenic potential.
(a) - WVDEP, 2001. West Virginia Voluntary Remediation and Redevelopment Act Guidance Manual. Table E-1.
(b) USEPA, 2004. Risk Assessment Guidance for Superfund. Vol. 1, Part E. July, 2004. Exhibit 3-4.

TABLE 14
CALCULATION OF PARTICULATE EMISSION FACTOR
RG CALCULATION - ARSENIC

Parameter	Definition	Units	Value	Source
Q/C	Inverse of mean concentration at center of source	g/m^2-s per kg/m^3	41.83	(a)
V	Fraction of vegetative cover	unitless	0.5	(b)
Um	Mean annual windspeed	m/s	4.69	(b)
Ut	Equivalent threshold value of windspeed at 7 m	m/s	11.32	(b)
F(x)	Function dependent on Um/Ut	unitless	0.194	(b)
PEF	Particulate emission factor	m^3/kg	6.06E+08	(c)

Notes:
(a) USEPA, 1996. Soil Screening Guidance: User's Guide. Exhibit 11.
Value for Huntington, WV, 2 acre source area.
(b) USEPA, 1996. Soil Screening Guidance: User's Guide. Default value. Equation 5.
(c) USEPA, 1996. Soil Screening Guidance: User's Guide. Calculated using above parameters and Equation 5:

$$\text{PEF (m^3/kg)} = \text{Q/C (g/m^2-s per kg/m^3)} \times \frac{3600\text{s/h}}{0.036 \times (1-V) \times (Um/Ut)^3 \times F(x)}$$

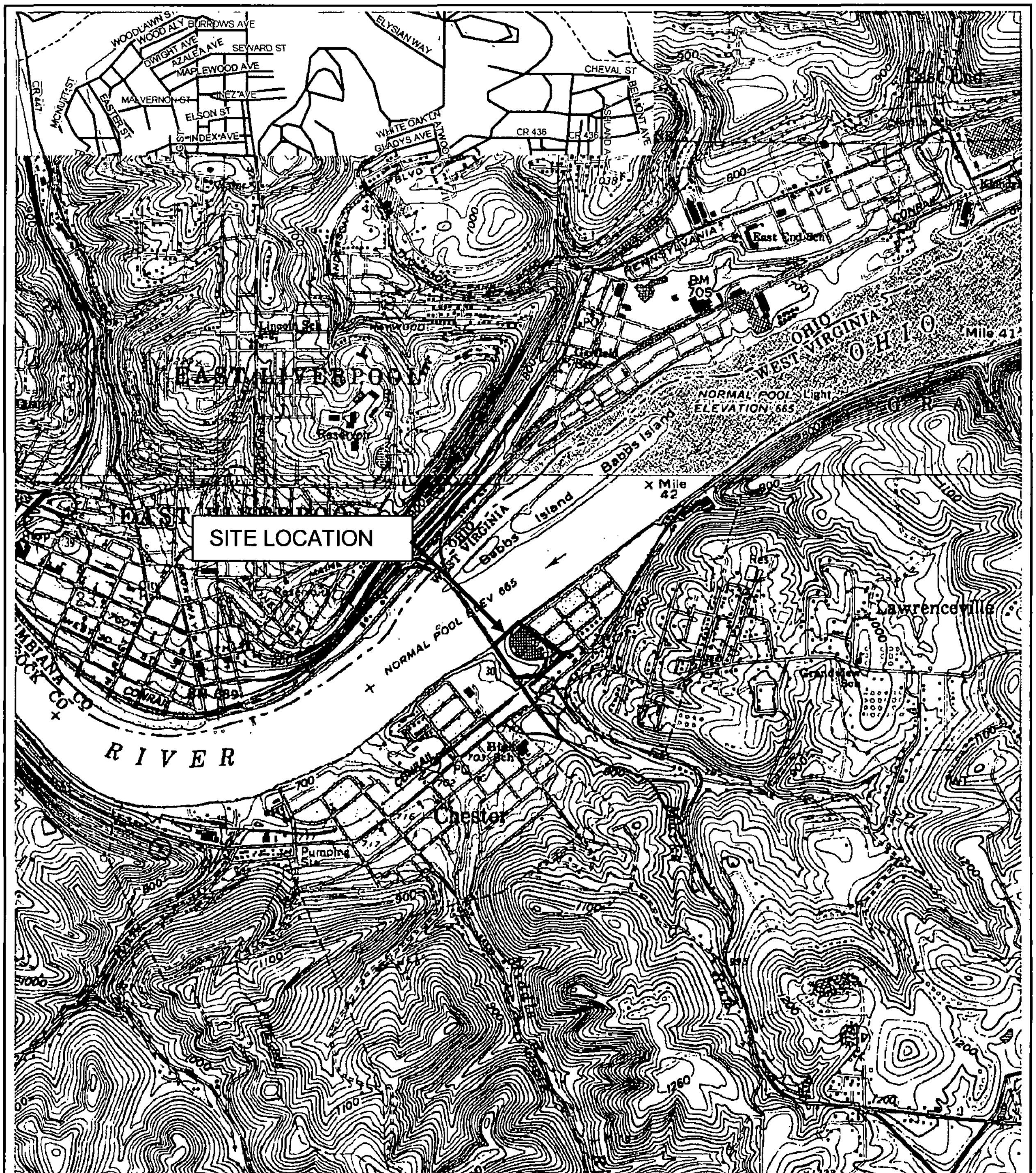
TABLE 15
RG SUMMARY - ARSENIC
RG CALCULATION - ARSENIC

Constituent	Unit-Based Non-Cancer Hazard Index (a): Ingestion Dermal Contact	Unit-Based Non-Cancer Hazard Index (a): Inhalation	Risk-Based Concentration (b) (mg/kg)	Unit-Based Excess Lifetime Cancer Risk (a): Ingestion Dermal Contact	Unit-Based Excess Lifetime Cancer Risk (a): Inhalation	Risk-Based Concentration (c) (mg/kg)	Selected RBC (d) (mg/kg)
Arsenic	4.61E-04	1.37E-06	2.16E+03	3.26E-08	2.85E-11	3.07E+02	307

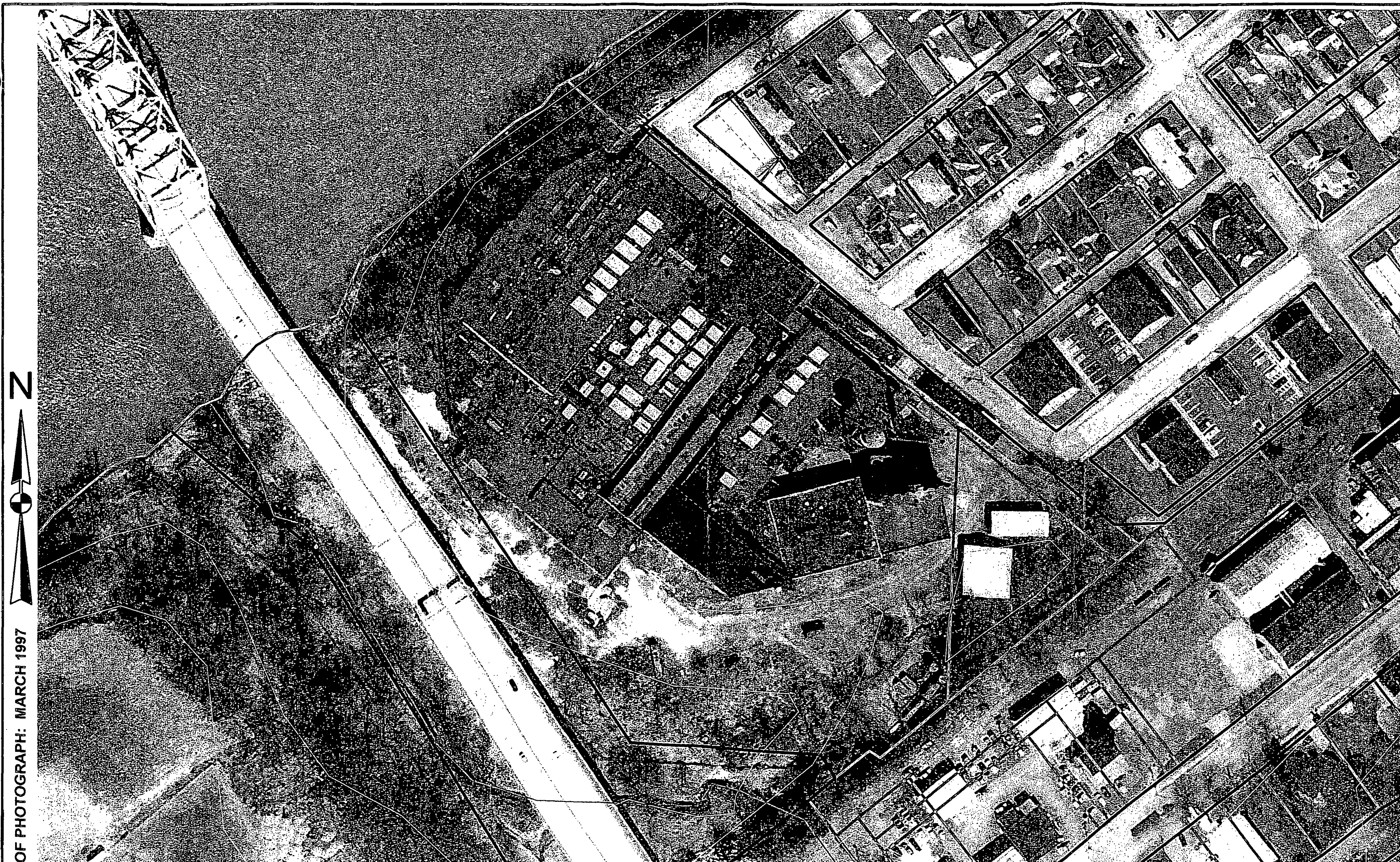
Notes:
(a) - Calculated in Appendix F.
(b) Risk Based Concentration = [Unit soil concentration (1 mg/kg) x Target Hazard Index (1)]/[Ingestion+Dermal+Inhalation Unit Based Hazard Index].
(c) Risk Based Concentration = [Unit soil concentration (1 mg/kg) x Target Risk (1E-5)]/[Ingestion+Dermal+Inhalation Unit Based Risk].
(d) - Selected value is the lower of the noncancer and cancer risk-based concentrations.

TABLE 16
CALCULATED RG AND ASSOCIATED MODEL INPUTS - LEAD
RG CALCULATION - LEAD

Exposure Variable	Description of Exposure Variable	Units	Trespasser	References
$PbB_{fetal,\ 0.95}$	95th percentile PbB in fetus	ug/dL	10	USEPA, 2003
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	USEPA, 2003
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	USEPA, 2003
GSD_i	Geometric standard deviation PbB	--	2.2	USEPA, 2003
PbB_0	Baseline PbB	ug/dL	1.6	USEPA, 2003
IR_S	Soil ingestion rate	g/day	0.1	USEPA, 2003
$AF_{S,\ D}$	Absorption fraction (same for soil and dust)	--	0.12	USEPA, 2003
$EF_{S,\ D}$	Exposure frequency (same for soil and dust)	days/yr	52	USEPA, 2003
$AT_{S,\ D}$	Averaging time (same for soil and dust)	days/yr	365	USEPA, 2003
RG	**Remedial Goal**	**ppm**	**2102**	



Scale: 1:25,000	Newell Holdings Delaware, Inc. Removal Action Implementation Plan E. Liverpool South, WV Quadrangle 1995	**Site Location** 8th and Plutus Streets Pottery Site Chester, West Virginia January 2006 Job No.10533-012-700	**Figure 1** www.ensr.aecom.com



THIS DOCUMENT IS A TAX MAP: It was compiled for purposes of taxation from available record evidence and has not been field verified. This map is not a valid survey plat. The existence of data on this document does not imply any "official" status to such data. The W.V. State Tax Dept. and the Hancock County Assessor's Office assume no liability that might result from use of this document.

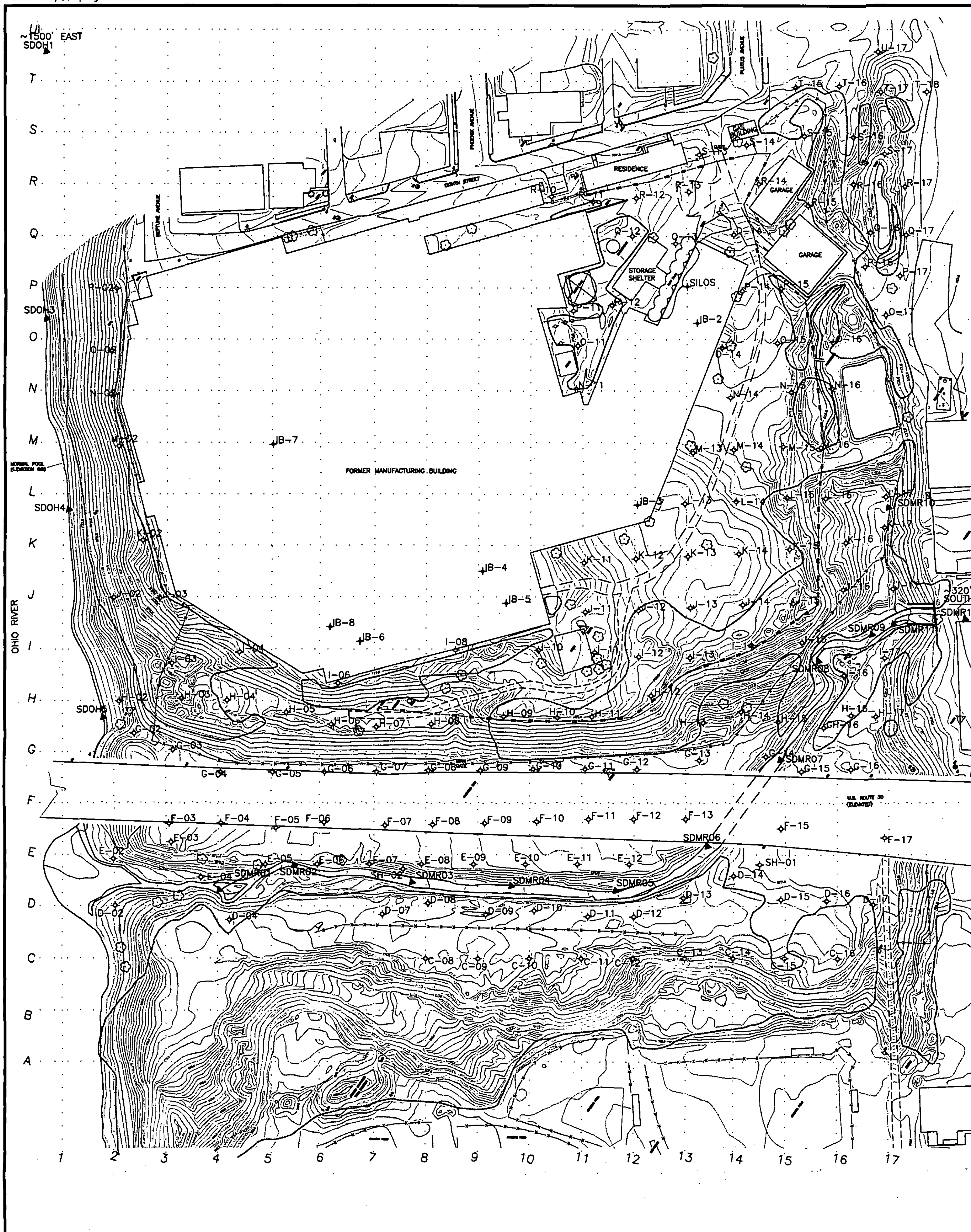
Office of the
Hancock County Assessor
Joe Alongi, Assessor

Property Tax Mapping
Daniel C. Tassey

Figure 2

Map Prepared By:
Vince LaNeve

AR100174



LEGEND:

- POLE
- MANHOLE
- HYDRANT
- WATERLINE
- BUILDING OR AREA EXCLUDED FROM STUDY
- TOPOGRAPHIC CONTOUR LINE
- NATURAL GAS LINE (APPROXIMATE)
- SOIL SAMPLE LOCATION
- INTERIOR SAMPLE LOCATION
- SEDIMENT SAMPLE
- FENCE
- TREELINE
- CONCRETE

CONTOUR INTERVAL: 0.5'

MAPPING COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED 03/06/05.

THIS MAP WAS NOT SUBJECTED TO A FIELD EDIT.

AREAS OF MAPPING WHICH MAY NOT MEET ACCURACY STANDARDS ARE OUTLINED AND MARKED AS SUCH.

CONTOURS LOCATED FROM MAP LIMITS OUTLINE TO OUTER EDGE OF MAPPING MAY NOT MEET ACCURACY STANDARDS DUE TO TERRAIN MODELING PROCESS.

MAP CONTROL WAS DERIVED FROM CONVENTIONAL AND GLOBAL POSITION FIELD SURVEY TECHNIQUES PROVIDED BY LAND & MAPPING SERVICES.

TRUE NORTH

SITE NORTH

SHEET NUMBER: 1 of 1

FIGURE NUMBER: 3

SAMPLE LOCATION MAP

8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

SCALE:	DATE:	PROJECT NUMBER:
1" = 100'	01/23/06	10533-012-700

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Map: XRF lead Results Figure #4

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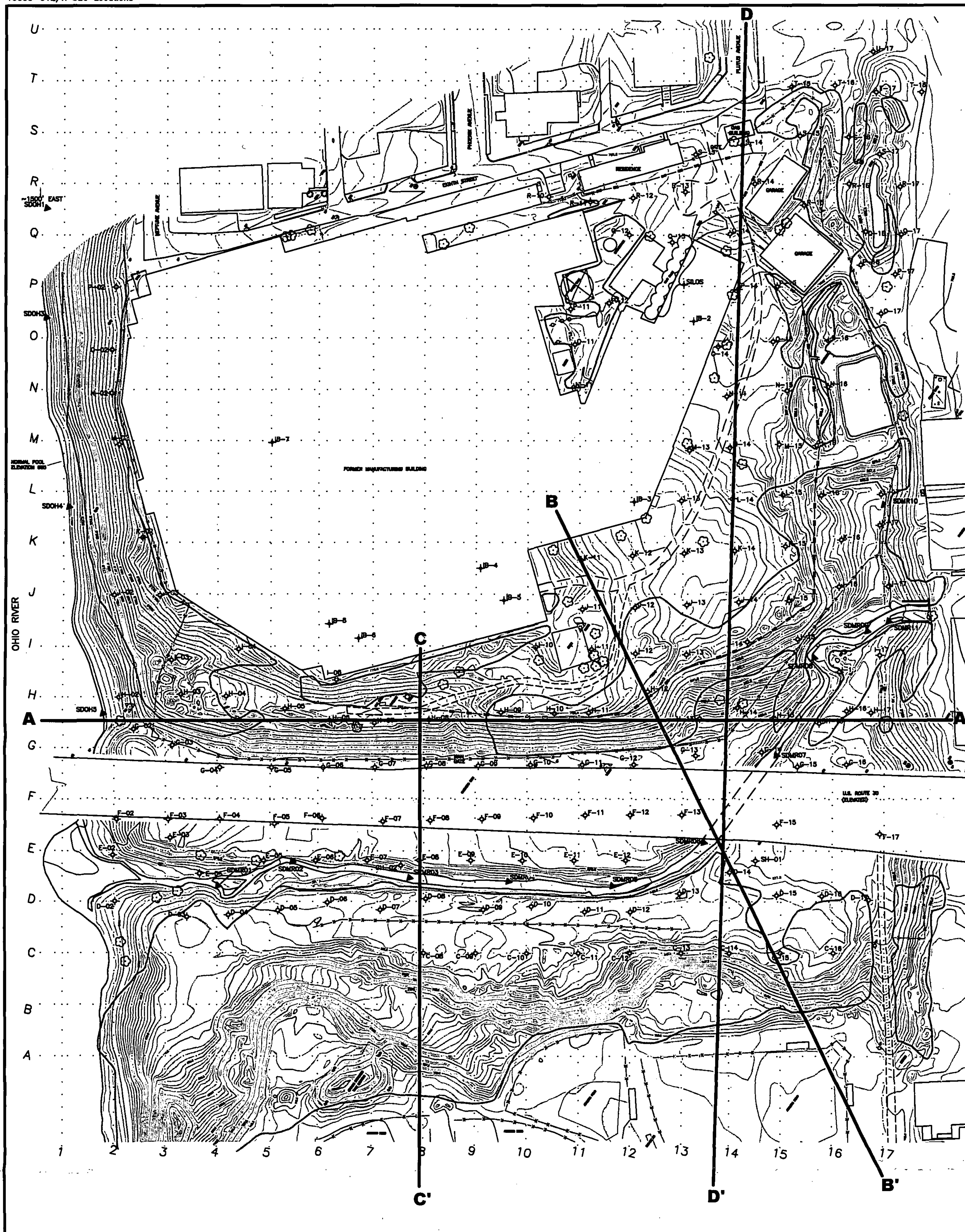
10533-012/X SEC Locations



LEGEND:

POLE	NATURAL GAS LINE (APPROXIMATE)
MANHOLE	SOIL SAMPLE LOCATION
HYDRANT	INTERIOR SAMPLE LOCATION
WATERLINE	SEDIMENT SAMPLE
BUILDING	FENCE
TOPOGRAPHIC CONTOUR LINE	TREELINE
	CONCRETE

CONTOUR INTERVAL: 0.5'

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MAP CONTROL WAS DERIVED FROM CONVENTIONAL AND GLOBAL POSITION FIELD SURVEY TECHNIQUES PROVIDED BY LAND & MAPPING SERVICES.

CROSS-SECTION LOCATION MAP

8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

SCALE:	DATE:	PROJECT NUMBER:
1" = 100'	01/04/06	10533-012-700

FIGURE NUMBER: 5

SHEET NUMBER: 1 of 1

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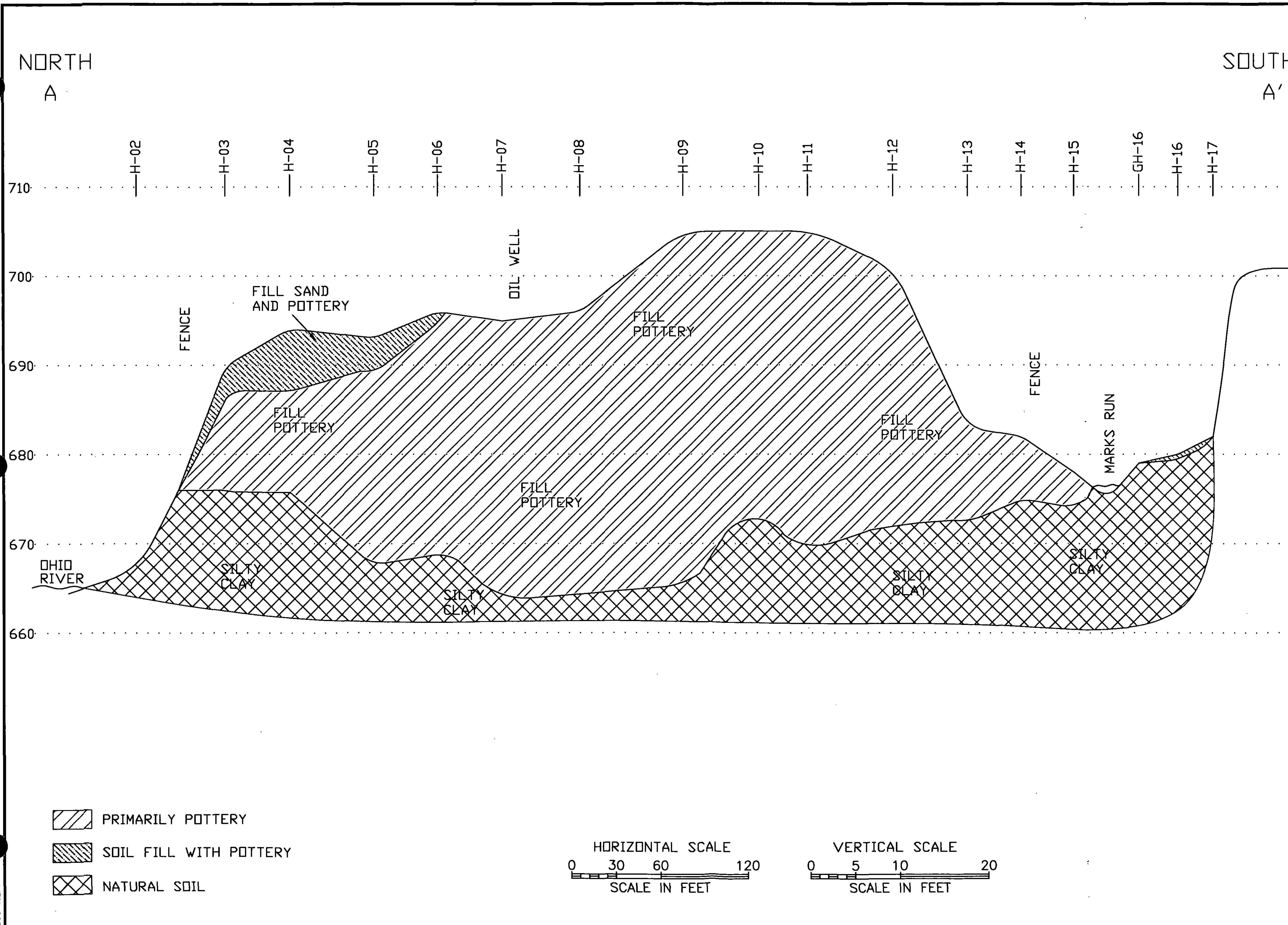

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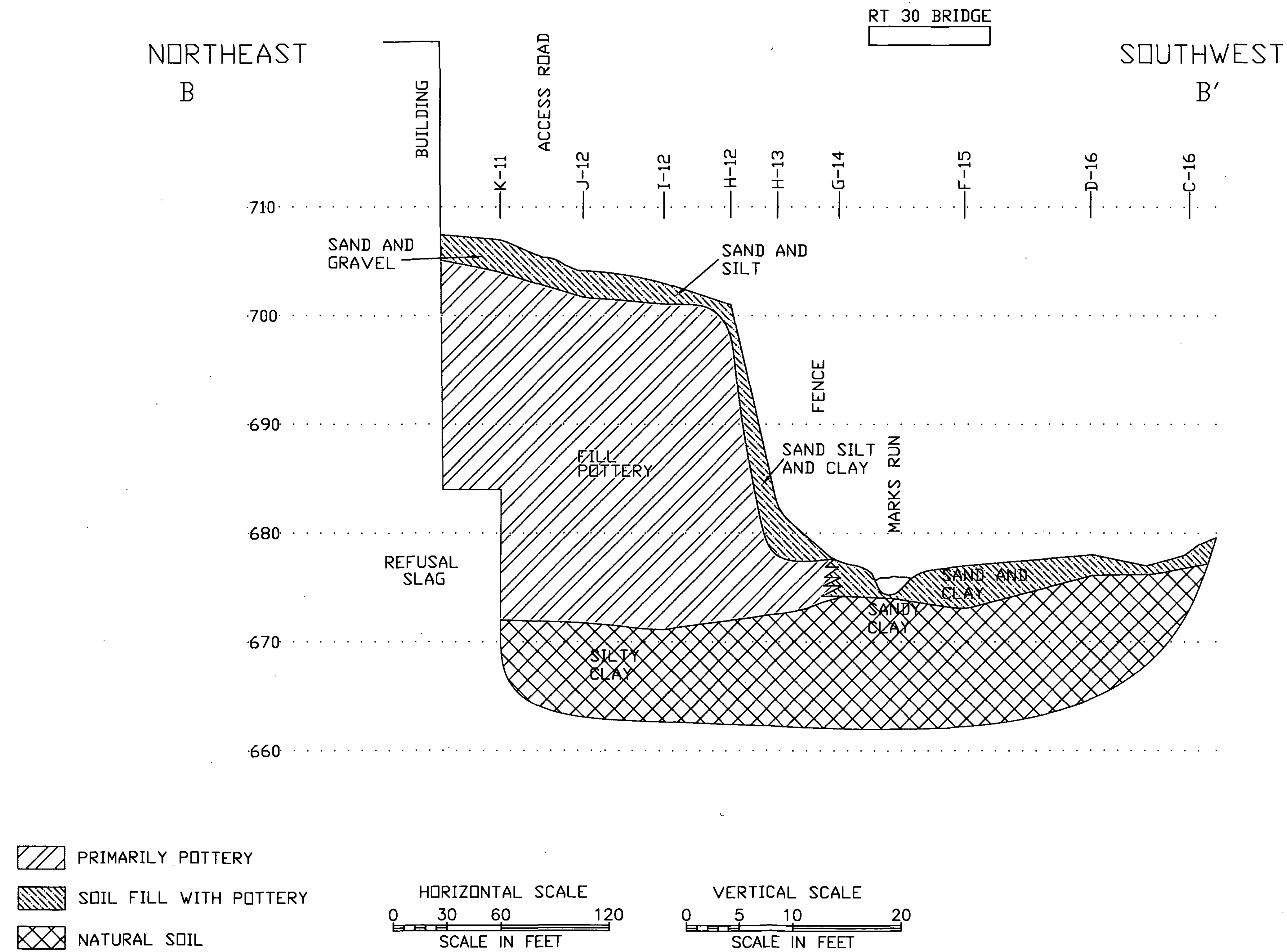
GENERALIZED SUBSURFACE
CROSS-SECTION A-A'
8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

SCALE: See Bar Scale
DATE: 01/04/06
PROJECT NUMBER: 10533-012-700

FIGURE NUMBER: **6**

SHEET NUMBER: 1 of 1



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GENERALIZED SUBSURFACE
CROSS-SECTION B-B'
8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

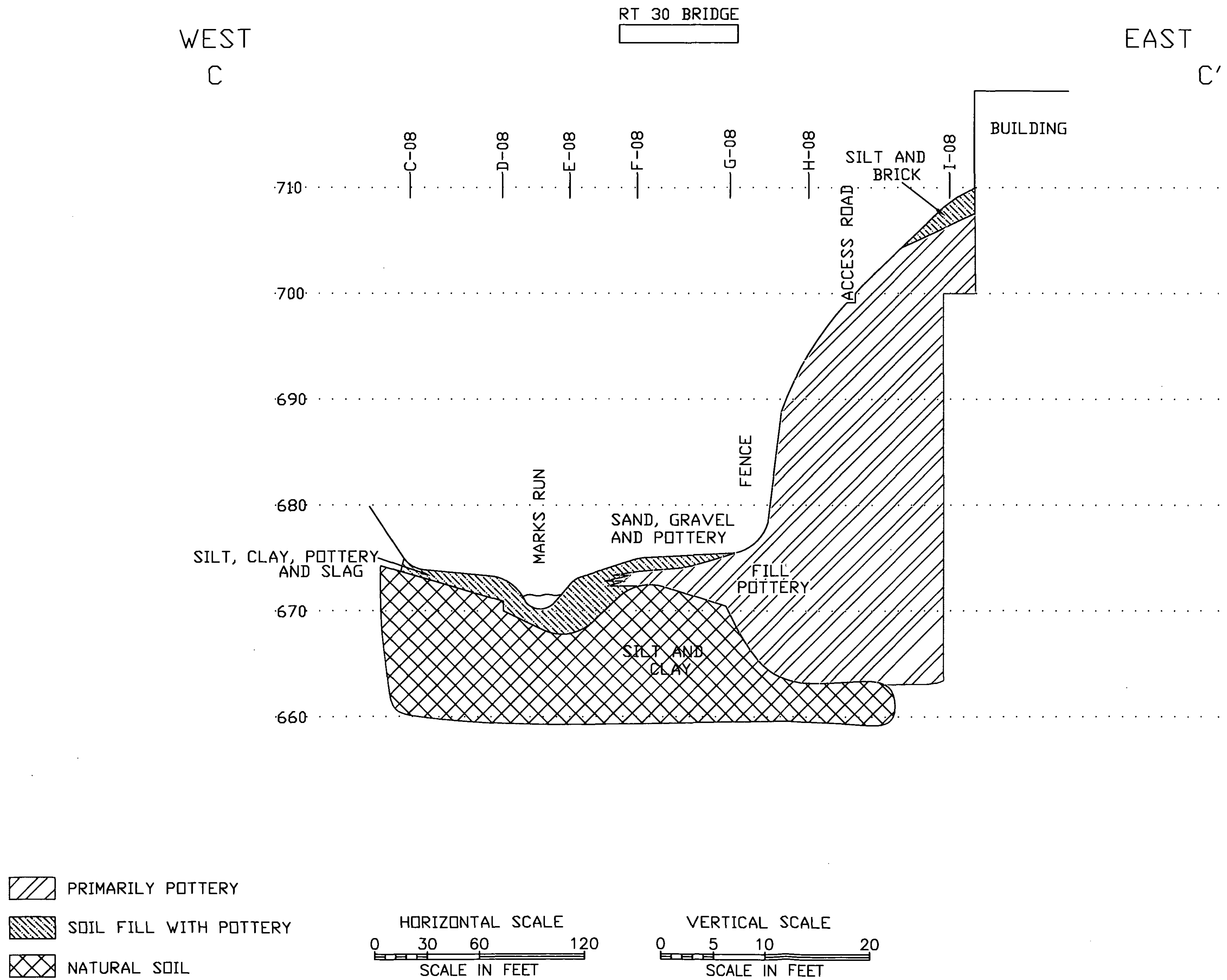
SCALE: See Bar Scale
DATE: 01/04/06
PROJECT NUMBER: 10533-012-700

FIGURE NUMBER: **7**

SHEET NUMBER: 1 of 1

AR100170

10533-012/X-SEC



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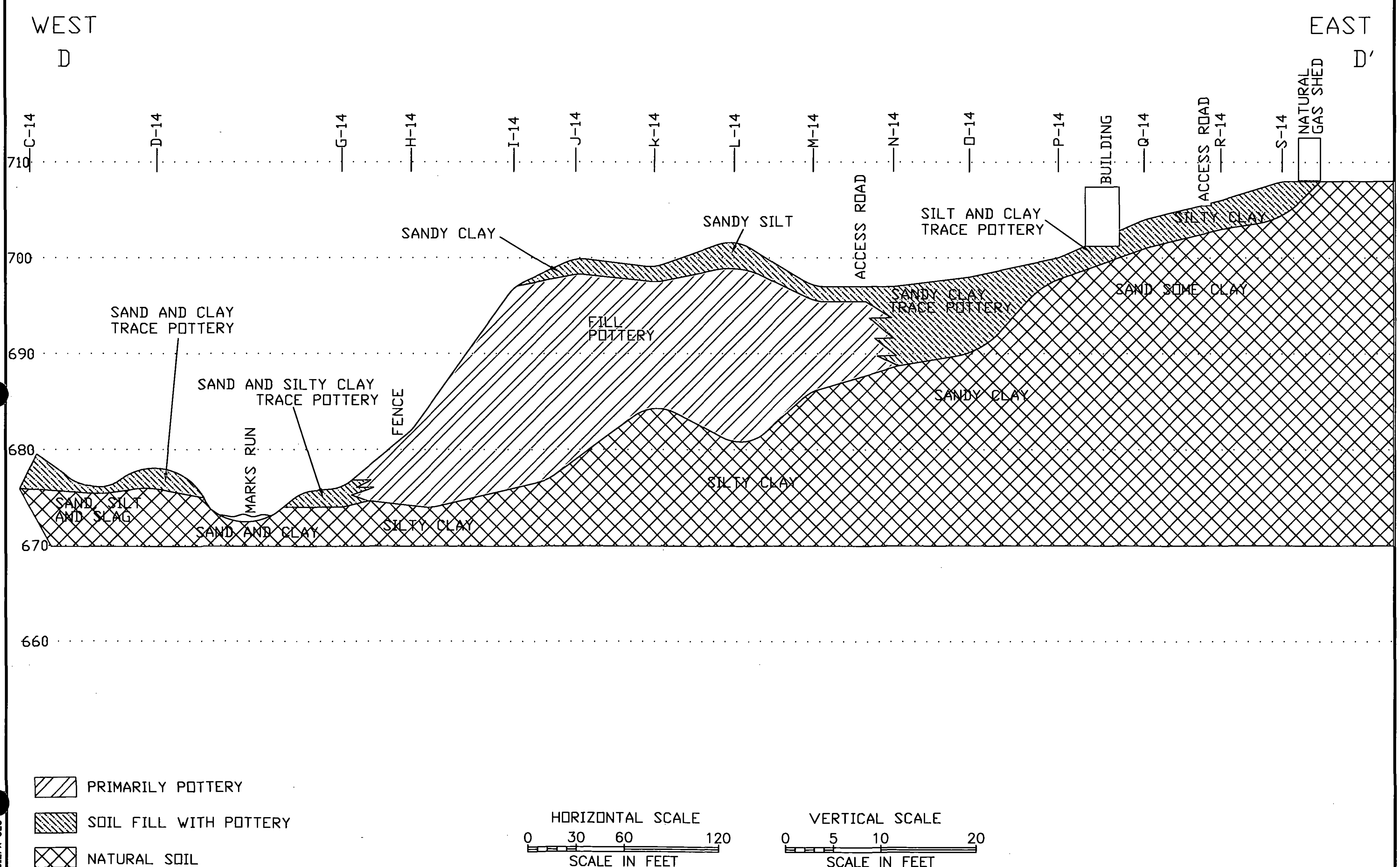
GENERALIZED SUBSURFACE
CROSS-SECTION C-C'
8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

SCALE: See Bar Scale
DATE: 01/04/06
PROJECT NUMBER: 10533-012-700

FIGURE NUMBER: **8**

SHEET NUMBER: 1 of 1

10533-012/X-SEC



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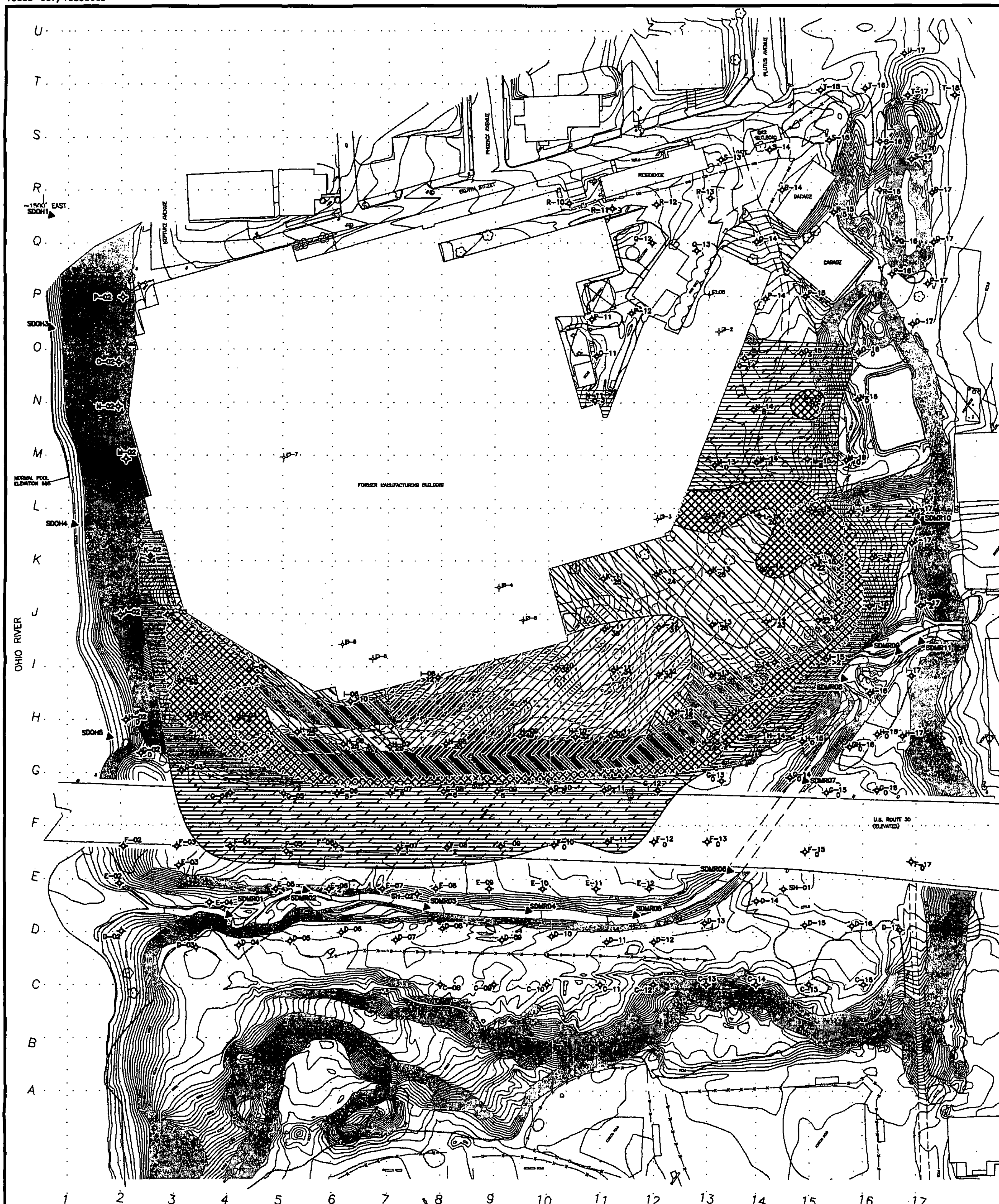
GENERALIZED SUBSURFACE
CROSS-SECTION D-D'
8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

SCALE: See Bar Scale
DATE: 01/04/06
PROJECT NUMBER: 10533-012-700

FIGURE NUMBER: 9

SHEET NUMBER: 1 of 1

10533-007/1053306b



LEGEND:

- SOIL/POTTERY >30' = 28,312 ft²
- SOIL/POTTERY 20–29' = 43,982 ft²
- SOIL/POTTERY 10–19' = 53,017 ft²
- SOIL/POTTERY 1–9' = 109,621 ft²
- POLE
- MANHOLE
- HYDRANT
- WATERLINE
- BUILDING
- TOPOGRAPHIC CONTOUR LINE
- NATURAL GAS LINE (APPROXIMATE)
- SOIL SAMPLE LOCATION
- INTERIOR SAMPLE LOCATION
- SEDIMENT SAMPLE
- FENCE
- TREELINE
- CONCRETE

CONTOUR INTERVAL: 0.5'

MAPPING COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED 03/06/05.

SHEET NUMBER: 1 of 1

FIGURE NUMBER: 10

POTTERY SHARD AND POTTERY AND SOIL THICKNESS MAP

8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

SCALE:	DATE:	PROJECT NUMBER:
1" = 100'	01/04/06	10533-012-700

ENSR | AECOM

ENSR CORPORATION
PITTSBURGH, PENNSYLVANIA 15222
PHONE: (412) 261-2910
FAX: (412) 765-1421
WEB: HTTP://WWW.ENSR.AECOM.COM

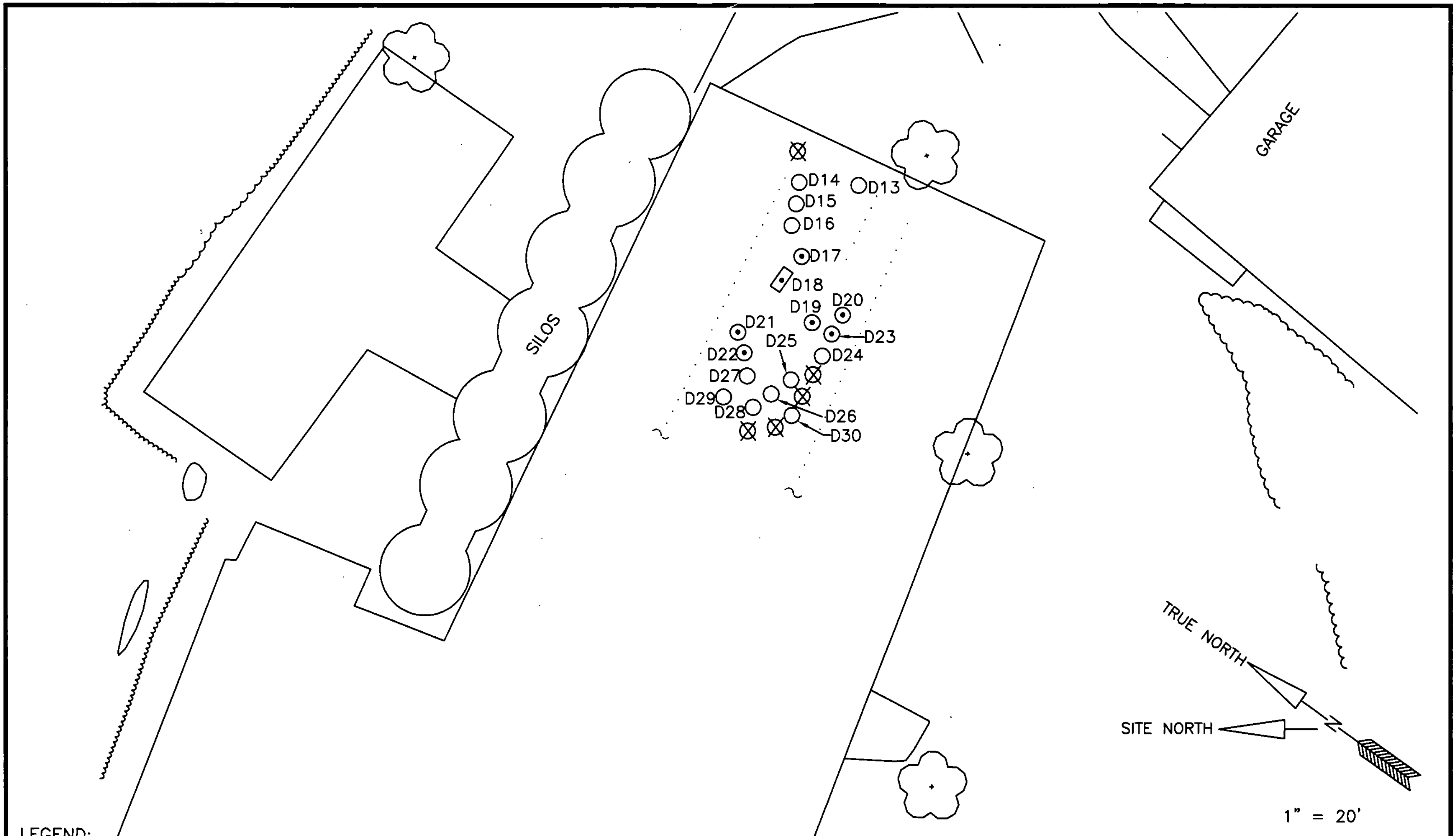
DESIGNED BY:	KMB
DRAWN BY:	KLP
CHECKED BY:	KMB
APPROVED BY:	DON

REVISIONS

NO.:	DESCRIPTION:	DATE:	BY:

AR100182

1053302A



LEGEND:

- ○ DRUM
- ⊙ STYRENE LABELED DRUM
- ⊠ EMPTY DRUM
- ▭ STYRENE LABELED DRUM ON ITS SIDE
- · · · · INTERIOR BUILDING WALL

ENSR | AECOM

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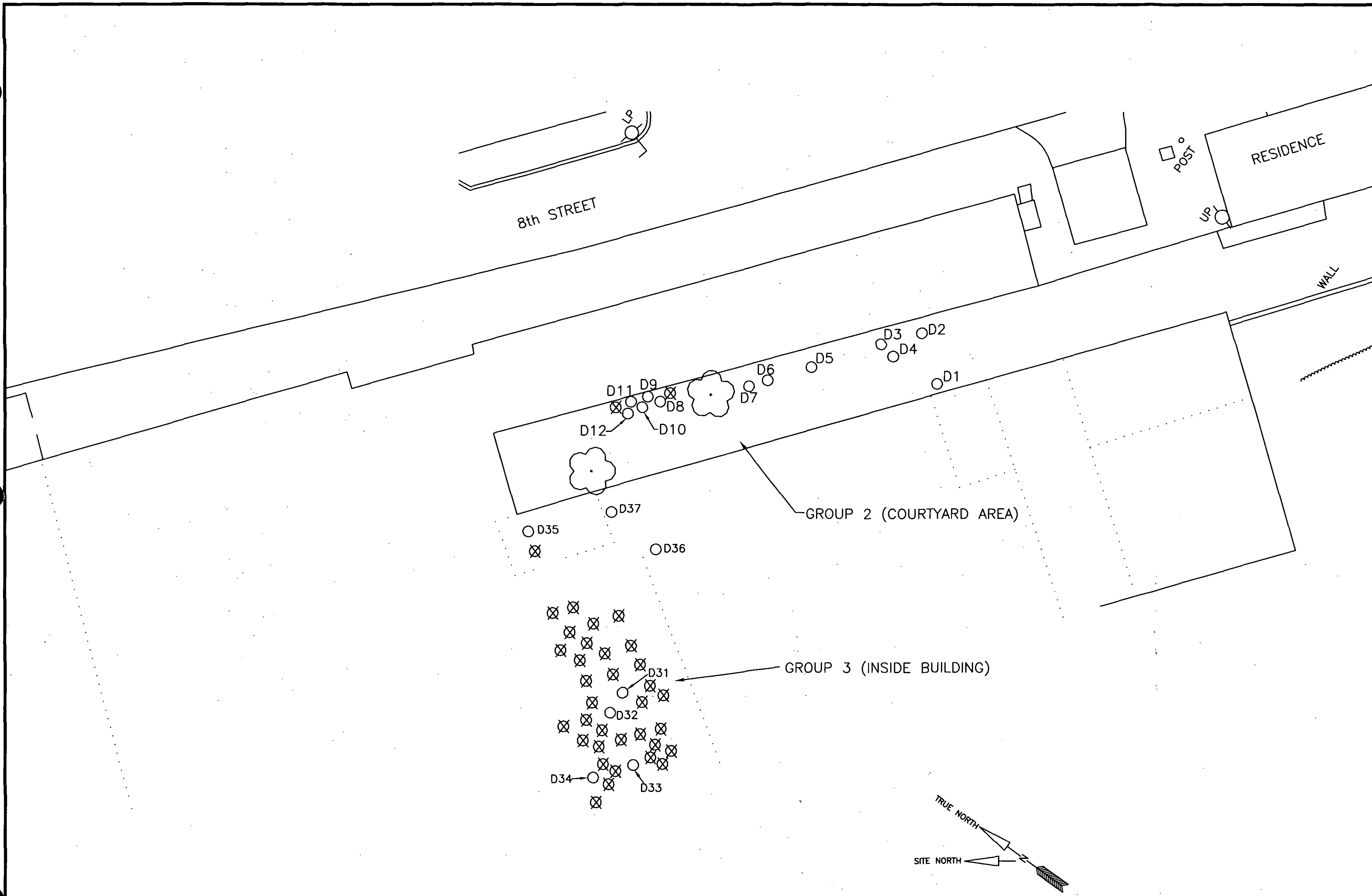
DRUM LOCATIONS
GROUP 1
8TH AND PLUTUS STREETS
POTTERY SITE
CHESTER, WEST VIRGINIA

FIGURE NUMBER:
11

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
KLP	01/04/06	10533-012-700	1 of 1



LEGEND:

- ○ DRUM
- ⊠ EMPTY DRUM
- · · · · INTERIOR BUILDING WALL

10533-012/10533

REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:

DESIGNED BY: KMB
DRAWN BY: KLP
CHECKED BY: KMB
APPROVED BY: DON

ENSR | AECOM

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APPROXIMATE LOCATIONS OF DRUMS

GROUPS 2 AND 3

8TH AND PLUTUS STREETS
CHESTER, WEST VIRGINIA

SCALE: See Bar Scale
01/04/06
PROJECT NUMBER: 10533-012-700

FIGURE NUMBER:

12

SHEET NUMBER: 1 of 1

SDMS US EPA Region III

Imagery Insert Form

Site Name: 8th & Plutus Streets Pottery Site **Document ID:** 2098289

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_X_ Oversized or ___ Format. Due to certain scanning equipment capability limitations, the document page(s) is not available in SDMS. The original document is available for viewing at the EPA Region 3 Superfund Records Center.

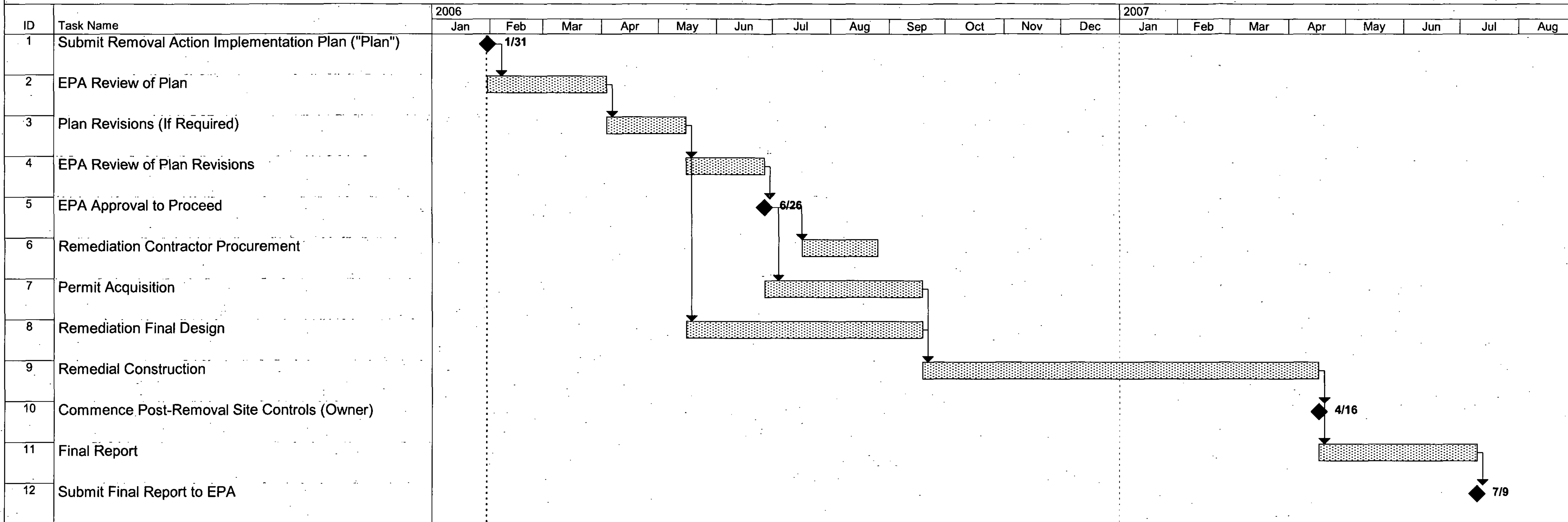
Specify Type of Document(s) / Comments:

Maps Conceptual Remediation Plan - Figure 13

☒ Document is available at the EPA Region 3 Superfund Records Center.

Specify Type of Document(s) / Comments:

Figure 14
Removal Action Implementation Schedule



BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

IN THE MATTER OF:

8th and Plutus Streets Pottery Site

Newell Holdings Delaware, Inc.

Respondent

Proceeding Under Sections 106(a) and 122(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. §§ 9606(a) and 9622(a)

Docket No. CERC-03-2004-0255DC

I hereby certify that the within is a true and correct copy of the original CONSENT ORDER filed in this matter.

Robert Hmm
Attorney for U.S. EPA - REGION III

ADMINISTRATIVE ORDER BY CONSENT FOR REMOVAL RESPONSE ACTION

The parties to this Administrative Order by Consent ("Consent Order" or "Order") Newell Holdings Delaware, Inc. (f/k/a Anchor Hocking Corporation) ("Newell" or "Respondent") and the United States Environmental Protection Agency ("EPA"), having agreed to the entry of this Consent Order, it is therefore Ordered, that:

I. JURISDICTION AND GENERAL PROVISIONS

1.1 This Consent Order is issued pursuant to the authority vested in the President of the United States by Sections 106(a) and 122(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("CERCLA"), 42 U.S.C. §§ 9606(a) and 9622(a); delegated to the Administrator of EPA by Executive Order No. 12580, 52 Fed. Reg. 2923 (January 29, 1987); further delegated to the Regional Administrators of EPA, and to the Director of the Hazardous Site Cleanup Division, EPA Region III. This Consent Order pertains to property located at 8th Street and Phoenix Avenue, Chester, Hancock County, West Virginia. The property will hereinafter be referred to as the "8th and Plutus Streets Pottery Site" or "the Site", and is further described in Section III ("Findings of Fact") below.

1.2 The Respondent agrees to undertake all actions required by, and comply with all requirements of, this Consent Order (the "Work"), including any modifications hereto.

1.3 The Work shall be consistent with the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 C.F.R. Part 300; and CERCLA.

1.4 The Respondent consents to and will not contest EPA's authority or jurisdiction to issue or to enforce this Consent Order.

II. STATEMENT OF PURPOSE

2.1 In entering into this Consent Order, the mutual objectives of EPA and Respondent are to protect public health, welfare, and the environment by conducting a removal action, as defined in Section 101(23) of CERCLA, 42 U.S.C. § 9601(23), to abate, mitigate and/or eliminate the release or threat of release of hazardous substances at the Site, as hereinafter described, by: (a) excavating and removing all surface soils, sediments, and discarded glazed ceramic shards and other debris mixed in with and/or lying near the ceramic shards (collectively, "ceramic debris"), located at the Site that contain certain hazardous substances; (b) arranging for the proper disposal of all such contaminated surface soils, sediments, and debris; (c) arranging for the proper recycling of glazed ceramic shards; (d) containing and preventing the migration of hazardous substances that will remain in sub-surface soils at the Site after the removal action; and (e) taking measures to ensure that residents living at the Site are not exposed to unsafe levels of such hazardous substances at the Site during and after the removal action.

III. FINDINGS OF FACT

3.1 Respondent Newell (f/k/a Anchor Hocking Corporation) is a corporation that was incorporated on or around September 13, 1928 in the State of Delaware. Respondent previously owned and operated a pottery manufacturing facility (the "Facility") at the Site from approximately 1973 to 1982. A legal description of the Facility's former property boundaries is provided in Exhibit A, attached hereto.

3.2 Respondent previously manufactured ceramic pottery at the Site. The manufacture of ceramic-based products typically includes the glazing of finished pottery. The glazing process consists of applying colored minerals, mixed with various chemical oxides, to the pottery. This process introduces several materials into the finished product, including metals such as lead, arsenic, antimony, barium, cadmium, cobalt, copper, nickel, and chromium, all of which are hazardous substances. Ceramic debris, containing hazardous substances, was disposed of at the Site in large piles of broken pottery shards and other debris.

3.3 The Site comprises approximately 11 acres and is located at or around 8th Street and Phoenix Avenue in the town of Chester, Hancock County, West Virginia. A map of the Site is attached to this Consent Order as Exhibit B. The Site is at an elevation of approximately 700 feet above mean sea level and is situated in the northern section of the Ohio River flood-plain. The Site includes the Facility and areas located outside the Facility's perimeter fence, where hazardous substances have come to be located, including, but not limited to, sediments of Marks Run, a tributary of the Ohio River, that borders the Site. The Site is bordered to the northeast by residential properties, to the southeast by commercial property and by Marks Run; to the southwest by the Jennings Randolph Bridge and Mark's Run, and to the northwest by the Ohio River. The gradient from the Site to the Ohio River is approximated at over 50%. The majority of the Site is occupied by the Facility. Much of the Facility and its structures are still present. However, vandals have removed most of the electrical wiring, motors, and miscellaneous structural components associated with the kilns and pottery furnaces. According to the current property owner, on-Site silos still contain starting materials associated with pottery making. The materials in the silos, were not sampled during the June 2003 removal assessment (see 3.6 below).

3.4 The Facility was owned and operated by three different entities from approximately 1900 to 1982. From approximately 1900 to 1907, the Facility was operated by Taylor, Smith and Lee Pottery. From approximately 1907 to 1971, it was operated by Taylor, Smith and Taylor Company, and, following a merger in or about 1973, by Anchor Hocking from approximately 1973 to 1982. The Facility was permanently closed by Anchor Hocking in early 1982. Anchor Hocking sold the Facility property to Hans F. Dietz in 1984. Mr. Dietz died intestate in May, 1989, his parents, Marian and Robert Dietz, and Jan and Primo DiCarlo inherited the Facility property. The Facility property was subsequently sold to Rock Springs Enterprises, Inc. ("Rock Springs") in November, 1989. Current property records show that the majority of the Site property is owned by Rock Springs, and a small sub-parcel by Hans Dietz Apartments, LP. The former office building located in the southeastern portion of the Site property has been converted into apartments and is currently being used as a residence. Two garage buildings, also located in the southeastern portion of the Site property, were used by Hans Dietz in connection with a barge-cleaning business that he operated at the Site. According to information provided to EPA by counsel for Rock Springs, these buildings were used for a time by an entity who purchased Mr. Dietz's barge-cleaning business after his death, but they are currently not in use. There is an active natural gas well located on the southwestern portion of the Site property. A pipeline from this well runs along the southwestern and southern perimeter of the Site property and toward the area of the Site property where the residences and garages are located. The well and pipeline are owned and operated by G.O.W. Resources.

3.5 On or about June, 2003, EPA On-Scene Coordinator ("OSC") Marjorie Easton performed a removal assessment which revealed elevated levels of lead, a listed hazardous substance as defined in Section 101 (14) of CERCLA, 42 U.S.C. § 9601 (14). During the June, 2003 assessment, OSC Easton also discovered that a small area of the Site contained elevated levels of polychlorinated biphenyls ("PCBs"). PCBs are designated as a hazardous substance under Section 102 (a) of CERCLA, 42 U.S.C. § 9602(a), and 40 CFR Part 302.4.

3.6 During EPA's June, 2003, assessment, 22 soil or soil/ceramic debris samples and duplicate samples were collected from various locations within the Site boundary. The sample with the highest level of lead was collected near the ceramic debris piles on the western edge of the Site. This sample revealed a lead level of 30,300 parts per million ("ppm"). According to guidance of the Agency for Toxic Substances and Disease Registry ("ATSDR"), the cleanup level guideline for lead for future residential use is 400 ppm. Levels of lead contamination from the other 21 soil samples ranged from a high of 22,300 ppm from a sample collected inside one of the buildings on-Site, to a low of 150 ppm from a sample collected at the eastern edge of the Site.

3.7 **Prior Response Actions at the Site**

(A) On January 27, 1998, the West Virginia Department of Environmental Protection ("WVDEP") investigated the Site at the request of the City of Chester. In late 1998, the WVDEP collected a soil sample from the property. This sample data revealed a lead level of 61,000 parts per million (ppm). This information was forwarded to the U.S. EPA Region III Removal Section.

(B) On January 21, 1999, EPA OSC Jeff Dodd, WVDEP and the Site Assessment Technical Assistance ("SATA") team conducted a windshield assessment of the property based on the soil sample collected by WVDEP. The representatives observed the area of broken pottery shards and debris on the western side of the Site. The WVDEP stated that two of the buildings on-Site were being leased to several companies for storage. No samples were collected at that time.

(C) On June 8, 2001, WVDEP, Division of Waste Management, Fairmont District Office conducted another Site reconnaissance and sampling event at the Site. WVDEP collected a total of 18 samples at various locations on the property. Ten of the samples were collected from the ceramic debris piles on the southwestern and southeastern sides of the Site. Analytical results revealed lead concentrations ranging from 688 ppm to 158,000 ppm for these samples. The eight remaining samples were collected inside the buildings on-Site. These were analyzed for total arsenic, barium, cadmium, chromium, selenium and asbestos. At the time, none of these substances (other than lead) proved to be at or above West Virginia state removal action levels. The WVDEP referred the Site to the EPA primarily due to elevated levels of lead present around the Facility.

(D) On May 17, 2002, the Superfund Technical Assessment and Response Team ("START"), working to support a Site Inspection assigned by Site Assessment Manager ("SAM") James Hargett, accompanied WVDEP in conducting a windshield assessment and perimeter reconnaissance of the inactive facility. Access gates were open or missing at the time of the visit. On the eastern end of the property, START observed evidence such as children's toys, near the old facility office which is presently being used as a residence. A small portion of the eastern section of the property is used to store empty pressurized tanks and various machinery. This area includes two buildings leased to other companies.

3.8 The lead levels in the Site soil samples that were collected by EPA in June, 2003, from the ceramic debris piles near Marks Run, a tributary to the Ohio River, range from a low of 56 ppm to a high of 30,300 ppm. Other data collected by EPA in June, 2003, indicate that lead is present in the sediments of the runoff ditches leading into the Ohio River. Two samples that were collected during the June, 2003, investigation indicated lead levels of 825 ppm and 6,090 ppm from sample locations in ditch or ditch areas where run-off flows directly to the Ohio River. The Ohio River is a major source of drinking water downstream from the Site. It is also a major fishing and recreational waterway for the area. In their health consultation dated August 18, 2003, the Agency for Toxic Substances and Disease Registry ("ATSDR") was concerned not only about the lead levels on Site, but also noted the possibility of PCBs getting into fish in the Ohio River. Currently, the State of West Virginia Department of Health and Human Resources lists a Fish Consumption Advisory for the entire length of the Ohio River based on PCB contamination. One grab sample collected by EPA at the Site during the June, 2003, investigation revealed a level of 21 ppm PCB Aroclor 1260. EPA's PCB Spill Cleanup Policy Rule, 40 CFR § 761.125(c)(4)(v), has established a cleanup guideline of 10 ppm for cleanup of PCBs in soils. A summary of EPA's June, 2003, sampling data, the West Virginia Fish Advisory, and ATSDR's Record of Activity for the August 18, 2003, health consultation are attachments to the Action Memorandum, which is attached hereto as Exhibit C.

3.9 Based upon information gathered in connection with the Site, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action may present an imminent and substantial endangerment to public health, welfare, or the environment. Lead and PCBs have various harmful effects to human health and the environment.

3.10 Lead and PCBs are listed as hazardous substances at 40 C.F.R. § 302.4.

3.11 Based on the information described above, in an Action Memorandum dated March 12, 2004, the Director of the Hazardous Site Cleanup Division for EPA Region III determined that a threat to public health, welfare and/or the environment exists due to the actual or threatened release of hazardous substances from the Site. The Division Director has approved the use of CERCLA funds to mitigate the threats posed at this Site. This approval is provided pursuant to EPA Delegation Number 14-2, which gives the Director of the EPA Region III Hazardous Site Cleanup Division authority to approve CERCLA Removal Actions.

IV. CONCLUSIONS OF LAW

4.1 The 8th and Plutus Streets Pottery Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

4.2 Respondent Newell Holdings Delaware, Inc. (f/k/a Anchor Hocking Corporation) is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

4.3 Lead and polychlorinated biphenyls ("PCBs") are "hazardous substances" within the meaning of Section 101(14) of CERCLA, 42 U.S.C. §9601(14), because they are listed at 40 C.F.R. § 302.4.

4.4 "Hazardous substances," as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), have been disposed of at the Site and are currently present there.

4.5 The presence of hazardous substances at the Site and the past, present, and/or potential migration of hazardous substances from the Site constitutes an actual and/or threatened "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

4.6 Respondent is a "person who at the time of disposal of hazardous substance owned or operated any facility at which such hazardous substances were disposed of" within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).

4.7 EPA has determined that Respondent is liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

V. DETERMINATIONS

Based on the Findings of Fact and Conclusions of Law set forth above, and upon EPA's review of information for the Administrative Record, EPA has determined that:

5.1 The actual and/or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health or welfare or the environment.

5.2 The Work is necessary to protect the public health and welfare and the environment.

5.3 Because there is a threat to public health or welfare or the environment, a removal action is appropriate to abate, minimize, stabilize, mitigate or eliminate the release or threat of release of hazardous substances at or from the Site.

VI. PARTIES BOUND

6.1 This Consent Order shall apply to and be binding upon EPA and its agents, and upon Respondent and its agents, successors, and assigns. Neither a change in ownership or corporate or partnership status of the Respondent, nor a change in ownership or control of the Site, shall in any way alter Respondent's responsibilities under this Consent Order.

6.2 In the event that Respondent files for or is placed into bankruptcy, Respondent shall notify EPA within three days of such event.

6.3 The Respondent shall provide a copy of this Consent Order to all contractors, subcontractors, supervisory personnel, laboratories and consultants retained by Respondent to conduct any portion of the Work to be performed by Respondent pursuant to this Consent Order. Respondent shall require in any and all contracts related to this Site that the Work that is the subject of such contract be performed within the time and in the manner set forth in this Consent Order.

6.4 The undersigned representative of Respondent certifies that he or she is fully authorized to enter into the terms of this Consent Order and to execute and legally bind Respondent to this Consent Order.

VII. NOTICE TO THE STATE

7.1 Notice of issuance of this Consent Order has been given to the State of West Virginia pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

VIII. RESPONSE ACTION PLAN DEVELOPMENT AND IMPLEMENTATION

8.1 Respondent shall commence and complete performance of the following response action within the time periods specified herein.

8.2 Within five (5) business days of the effective date of this Consent Order, Respondent shall notify EPA in writing of the identity and qualifications of the contractor, subcontractor, supervisory personnel, and other persons who will be primarily responsible for developing the Response Action Plan ("RAP") required by this Section. Respondent shall further notify EPA in writing of the identity and qualifications of all contractors, subcontractors, supervisory personnel and other persons selected by Respondent who will conduct all or any portion of the response action no less than ten (10) business days prior to commencement of the response action to be performed by such persons. Respondent shall ensure that all contractors, subcontractors, supervisory personnel and/or other persons retained to perform the response action shall meet the applicable Occupational Safety and Health Administration ("OSHA") requirements as defined in 29 C.F.R. § 1910.120. The Respondent's selection of all contractors, subcontractors, supervisory personnel and other persons who will perform the response action; the Respondent's Project Coordinator designated pursuant to Section IX; and any replacements to any such persons are subject to disapproval by EPA at any time. In the event of any such disapproval by EPA, Respondent shall notify EPA within ten (10) calendar days of receipt of such EPA disapproval of the person(s) who will replace the one(s) disapproved by EPA. If a person's selection is disapproved by EPA, they shall not perform such specified response action.

8.3 Respondent shall accomplish the following items:

a. Within forty-five (45) days of the effective date of this Consent Order, in order to prevent exposure to hazardous substances by trespassers at the Facility, restrict public access to the Facility by: installing fencing around the perimeter of the Facility wherever such fencing does not currently exist; repairing any existing damaged perimeter fencing, including, but not limited to, the damaged fencing on the western side of the Facility; and repairing all damaged gates at the Facility;

b. Within forty-five (45) days of the effective date of this Consent Order, install warning signs and physical boundaries within the Site, including, but not limited to, caution tape, to identify, delineate, and further restrict access to all areas of known surface contamination, including, but not limited to, all ceramic debris;

c. In addition to the requirements of subparagraphs 8.3(a) and (b) above, install temporary fences and/or other physical barriers to ensure that residents who live at the Facility are protected from exposure to contamination and ongoing work during the performance of the response action;

d. During the actions described in subparagraph 8.3(g) below, arrange for the temporary relocation of residents living at the Facility, as warranted, so that they are not exposed to unhealthful levels of air-borne lead;

e. Conduct an extent of contamination study for the Site which will characterize the extent of lead and PCB contaminated soils, sediments and/or debris in both on-property and off-property areas, including the Jennings Randolph Bridge property and the Marks Run tributary. This will include performing a detailed characterization of the lead contamination on Site using X-Ray Fluorescence technology followed by confirmatory laboratory analyses with appropriate quality control. A guideline of 400 ppm for lead will be used in accordance with ATSDR guidance. In determining the extent of PCB contamination, a guideline of 10 ppm will be used in accordance with the EPA PCB spill cleanup policy rule, 40 CFR § 761.125(c)(4)(v);

f. Sample for the presence of additional contaminants associated with pottery manufacturing, including, but not limited to, arsenic, antimony, barium, cadmium, cobalt, copper, nickel and chromium, using XRF technology followed by confirmatory laboratory analysis with appropriate quality control. Sample results will be compared to the most current EPA Region III Risk-Based Concentration ("RBC") Table, which assigns health-based benchmarks to various potential contaminants. The most current RBC Table (April 14, 2004) may be found at http://www.epa.gov/reg3hwmd/risk/human/index.htm. A copy of the most current RBC Table is attached hereto as Exhibit D. If sample results of any additional contaminants associated with pottery manufacturing, including, but not limited to, arsenic, antimony, barium, cadmium, cobalt, copper, nickel and chromium, prove to be higher than ten times the RBC Table benchmarks, a toxicological review of the data by ATSDR will be conducted in order to establish Site-specific Removal Action Guidelines;

g. Properly excavate and remove lead-contaminated surface soils, ceramic and other debris that test positive for concentrations of 400 ppm or higher. Excavate and remove PCB contaminated surface soils if they test positive for 10 ppm or higher. Excavate and remove surface soils containing additional contaminants which prove to be present at or above Site-specific Removal Action Guidelines;

h. Dispose of contaminated soils and non-recyclable ceramic debris off-site in accordance with CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Dispose of or recycle glazed ceramic shards in accordance with CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, including the relevant provisions for disposal or recycling in the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §§ 6901 *et seq.*, and the Toxic Substances Control Act, 15 U.S.C. §§ 2601 *et seq.* and its implementing regulations;

i. Institute engineering controls, as necessary, to ensure that the hillsides on the southwestern and northern boundaries of the Site are stabilized and to control erosion on the southwestern and northern boundaries of the Site. The degree of engineering control implementation at the Site will be contingent upon the three dimensional volume of waste material contamination present at the Site which is yet to be determined. Engineering controls will be used in lieu of excavation where the depth of contamination exceeds two feet, or if the total amount of contaminated soil at the Site exceeds 5000 cubic yards;

j. Conduct post-removal sampling to determine whether the levels of lead, PCBs, and other contaminants, as described in subparagraph 8.3(f) above, remaining in soils at the Site, are below the EPA-approved clean up levels after completion of the work described in subparagraph 8.3(g), above;

k. Restore excavated area to the approximate original conditions by performing site restoration and re-vegetation. Cover areas where contamination was removed with clean soil, coir logs and/or matting, rip rap or other appropriate fill materials to prevent direct contact with soil and/or debris below the surface that may contain lead, PCBs, or additional contaminants associated with pottery manufacturing, at or above Removal Action Guidelines. Restoration activities will be performed in conformance with an approved soil erosion and sedimentation control plan. In areas where lead contamination will remain below the surface, place a demarcation material, such as filter fabric or liner, over the contamination prior to the placement of clean fill to prevent exposure to or unintentional disturbance of these areas;

l. Dispose of off-Site any contaminated water generated as a result of the above items (e.g. equipment and sampling-related decontamination fluids) by either (1) discharging such water in accordance with substantive National Pollution Discharge Elimination System ("NPDES") requirements into the Ohio River; or (2) removing and disposing of such water off-Site in accordance with applicable law and standards;

m. Provide site specific health and safety measures, including preparation and implementation of a Health and Safety Plan ("HASP") for actions to be performed at the Site, to protect the health and safety of workers, other personnel and the public from the hazardous substances and work-related health and safety hazards during performance of the response action specified herein. The HASP shall, as appropriate, provide for proper decontamination of personnel and equipment, monitoring and control of off-Site migration of hazardous substances during the performance of activities at the Site and protection of public health from exposure to hazardous substances during the conduct of activities at the Site pursuant to this Consent Order. The HASP shall, as appropriate, provide for a safety assessment of the structural soundness of any on-Site structures that are subject to this Consent Order. Health and safety requirements in the HASP shall be at least as stringent as those set forth in Occupational Safety and Health Administration and EPA requirements, including but not limited to, requirements contained in 29 C.F.R. § 1910.120 and/or EPA Standard Operating Safety Guides (July 5, 1988);

n. Obtain a Hazardous Waste Generator Identification Number;

o. Provide for post-removal Site control activities consistent with Section 300.415 (k) of the NCP, 40 C.F.R. § 300.415 (k); and EPA's "Policy on Management of Post Removal Site Control", (OSWER Directive 9360.2-02 (December 3, 1989)). Such activities shall include, but not be limited to, arrangements with the current Site owner and State or local governments for performance of actions that will ensure the integrity of the work performed at the Site pursuant to this Consent Order through operation and maintenance, actions that will continuously restrict access to the Site, measures that will ensure that any barrier or demarcation material placed over any contamination remaining below the surface of the Site; as provided for in subparagraph 8.3(k) above, is not disturbed, and measures that will ensure continuous review of monitoring data. For purposes of this paragraph, "arrangements with State or local governments for the performance of actions" shall mean submitting, by agreement or otherwise, to enforceable requirements determined by the State or local government to meet the criteria set forth in this paragraph, and shall include public participation and comment as required by the State or local government and the NCP. For purposes of this paragraph, "arrangements with the current Site owner" shall include implementation of institutional controls at the Site that protect the integrity of any barrier placed over any contamination remaining below the surface of the Site, as provided for in subparagraph 8.3(k) above. "Institutional Controls" shall mean non-engineering measures, usually legal controls, intended to limit human activity in such a way as to prevent or reduce exposure to hazardous substances;

p. Develop and follow an expeditious schedule for implementation of the RAP.

8.4 Within forty five (45) business days of the effective date of this Consent Order, Respondent shall submit to EPA for approval a RAP detailing the response action to be implemented for the items specified in paragraph 8.3 above. To the extent that information concerning the details of a particular item does not yet exist so that it can be described in the RAP, the RAP shall set forth an expeditious schedule and plan for submittal of RAP supplement(s) to EPA for approval, which supplement(s) shall fully detail such items. All references to the review, approval and enforcement of the RAP shall also be applicable to any RAP supplement(s). The RAP shall include, among other things, a schedule for expeditious performance of the response actions required by this Consent Order. The RAP shall be consistent with the NCP and shall be subject to approval by EPA according to the provisions of paragraphs 8.5 and 8.9 below.

8.5 EPA will review the RAP and notify the Respondent of EPA's approval or disapproval of the RAP. In the event of disapproval, EPA will specify the deficiencies in writing. The Respondent shall respond to and correct the deficiencies identified by EPA and resubmit the RAP to EPA within thirty (30) business days of receipt of EPA disapproval or such longer time as may be specified by EPA in its discretion. Exercise of EPA's discretion with respect to such period shall not be subject to the dispute resolution procedures set forth in Section XII of this Consent Order. Approval, disapproval and/or modification by EPA of the subsequent RAP submission shall be according to the provisions of Paragraph 8.9 below.

8.6 Within fifteen (15) business days of receipt from EPA of written approval to proceed with implementation of the EPA-approved RAP ("written approval to proceed"), the Respondent shall commence implementation of such RAP and complete it in accordance with the RAP and the schedule therein. In the event EPA determines that any portion of the response action performed is deficient, and EPA requires Respondent to correct or re-perform such portion of the response action pursuant to this Consent Order, Respondent shall correct or re-perform such response action or portion of the response action in accordance with a schedule provided by EPA.

8.7 Beginning thirty (30) calendar days subsequent to the date of receipt of EPA approval of the RAP and every thirty (30) calendar days thereafter, or such longer interval as may be determined in writing by the EPA Project Coordinator designated pursuant to Section IX, and until EPA advises Respondent that the Work is complete, the Respondent shall provide EPA with a progress report for each preceding thirty-day period or if applicable, the period specified in writing by the EPA Project Coordinator. The progress reports shall include, at a minimum: 1) a description of the response action completed and the actions that have been taken toward achieving compliance with this Consent Order, including measures to prevent pollution as described in paragraph 8.3(d) above; 2) a description of all data anticipated and activities scheduled for the next 30 calendar days or, if applicable, the period specified in writing by the EPA Project Coordinator; 3) a description of any problems encountered or anticipated; 4) any actions taken to prevent or mitigate such problems; 5) a schedule for completion of such actions; 6) copies of all analytical data received during the reporting period; and 7) all modifications to the response action, RAP and schedule made in accordance with Section XIV of this Consent Order during the reporting period.

8.8 Documents, including plans, reports, sampling results and other correspondence to be submitted pursuant to this Consent Order, shall be sent by certified or overnight mail to the EPA Project Coordinator designated pursuant to Section IX.

8.9 All reports, plans, approval letters, specifications, schedules and attachments required by this Consent Order are subject to EPA approval and shall be deemed incorporated into this Consent Order upon approval by EPA. In the event that EPA approves a portion of the RAP, report or other item required to be submitted under this Consent Order, the approved portion shall be enforceable under this Consent Order. In the event of conflict between this Consent Order and any document attached hereto, incorporated in or enforceable hereunder, the provisions of this Consent Order shall control. In the event that EPA disapproves any required submission, EPA will (1) specify the deficiencies in writing, and/or (2) submit its own modifications to the Respondent to accomplish the Work outlined in paragraph 8.3 above. Respondent shall amend and submit to EPA a revised submission that responds to and corrects the specified deficiencies within thirty (30) business days of receipt of EPA disapproval or such longer time as may be specified by EPA in its discretion. Exercise of EPA's discretion with respect to such period shall not be subject to the dispute resolution procedures set forth in Section XII of this Consent Order. In the event that EPA submits its own modifications to the Respondent, the Respondent is hereby required to incorporate such modifications. Any non-compliance with EPA-approved reports, plans, specifications, schedules, attachments, or submission of deficient revisions following EPA disapproval, or non-compliance with an EPA-required modification shall be considered a failure to comply with a requirement of this Consent Order. Determination(s) of non-compliance will be made by EPA.

8.10 In addition to the information and documents otherwise required by this Consent Order, Respondent shall provide to EPA, upon written request, any and all information and documents in its possession, custody or control related to the Site including, but not limited to, Site analytical data (including raw data); Site safety data; Site monitoring data; operational logs; copies of all hazardous waste manifests (including copies of all hazardous waste manifests signed upon receipt of the hazardous wastes by a licensed treatment, storage or disposal facility); the identity of treatment, storage and/or disposal facilities used; the identity of transporters used; the identity of any contractors, subcontractors and supervisory personnel used; information and documents concerning Respondent's compliance with Quality Assurance and Quality Control requirements of this Consent Order; information and documents relating to Respondent's efforts to secure access; and information and documents relating to any project delays. Nothing herein shall be interpreted as limiting the inspection and information-gathering authority of EPA under Federal law.

8.11 Within sixty (60) calendar days of the date Respondent concludes it has completed implementation of the RAP and the items identified in paragraph 8.3, Respondent shall submit a written Final Report to EPA, subject to EPA approval described in paragraph 8.9 above. The written report shall detail the work undertaken to implement the RAP and the items identified in paragraph 8.3, of this Consent Order, and shall be certified by Respondent in accordance with the terms of Section XXII of this Consent Order. EPA will review the adequacy of Respondent's implementation of the RAP and accomplishment of items specified in paragraph 8.3 above. EPA will notify Respondent, in writing, of any discrepancies in the Final Report or deficiencies in the execution of the RAP and the items identified in paragraph 8.3 and the actions required to correct such discrepancies or deficiencies. Within thirty (30) business days of receipt of notification by EPA, or as otherwise specified by EPA, Respondent shall, as directed by EPA, amend the Final Report, develop an additional plan or amend the existing RAP to address such discrepancies or deficiencies. Any additional plan or amendment to the RAP will be subject to the approval procedures outlined in paragraphs 8.5 and 8.9 above. Respondent shall perform all actions approved by EPA in a manner consistent with the NCP and all applicable Federal laws and regulations, as required by the NCP.

8.12 Respondent shall not handle or remove any hazardous substances from the Site except in conformance with the terms of this Consent Order and all applicable Federal, State and local laws and regulations, as required by the NCP. Any hazardous substance, pollutant or contaminant transferred for disposal off-Site as a result of this Consent Order must be taken to a facility in accordance with 40 C.F.R. § 300.440 and Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3).

8.13 Respondent shall not commence any Work except in conformance with the terms of this Consent Order. Respondent shall not commence implementation of the RAP developed hereunder until receiving written EPA approval to proceed pursuant to paragraph 8.6.

8.14 Respondent shall immediately notify EPA's Project Coordinator and the National Response Center [(800) 424-8802] and any other party required by law in the event of any action or occurrence during the pendency of this Consent Order which causes or threatens to cause an additional release of hazardous substances, pollutants or contaminants on, at or from the Site, or which may create a danger to public health, welfare or the environment.

8.15 In the event that EPA believes that response action or other activities at the Site by the Respondent are causing or may cause a release or potential release of hazardous substances, or are a threat to public health or welfare or to the environment, EPA may, in its discretion, immediately halt or modify such response actions or other activities to eliminate or mitigate such actual or potential releases or threats.

IX. DESIGNATED PROJECT COORDINATORS

9.1 Respondent shall designate a Project Coordinator and shall notify EPA of such designation no later than five (5) calendar days after the effective date of this Consent Order. Designation of a Project Coordinator shall not relieve Respondent of its obligation to comply with the requirements of the Consent Order. The Respondent's Project Coordinator shall be a technical and/or managerial representative of the Respondent and may be a contractor and/or consultant; provided, however, the Respondent's Project Coordinator shall not be its legal representative in this matter. The Project Coordinator for EPA designated pursuant to this Section and the Project Coordinator for the Respondent shall be responsible for overseeing the Work. To the maximum extent possible, communications between the Respondent and EPA and all documents concerning the activities performed pursuant to the terms and conditions of this Consent Order, including plans, reports, approvals and other correspondence, shall be directed to the Project Coordinators.

9.2 The Project Coordinator for EPA is:

Dennis Matlock
On-Scene Coordinator
U.S. Environmental Protection Agency
Removal Enforcement Section (3HW32)
401 Methodist Building
Wheeling, West Virginia 26003
(304) 234-0284

9.3 Respondent shall have the right to change its Project Coordinator. Such a change shall be accomplished by notifying the EPA Project Coordinator in writing at least five (5) calendar days prior to the change.

9.4 EPA shall have the right to change its Project Coordinator at any time without prior notice to Respondent. EPA's intent is to notify the Respondent as soon as practicable following any such change of its Project Coordinator.

9.5 The absence of the EPA Project Coordinator from the Site shall not be cause for the stoppage or delay of Work except when such stoppage or delay is specifically required by EPA.

9.6 The EPA Project Coordinator shall have the authority to halt or modify Work or other activities performed by Respondent at the Site in order to eliminate a release or threat of release of hazardous substances. Such direction by the EPA Project Coordinator may be given verbally or in writing. If such direction is given verbally, the EPA Project Coordinator will later memorialize such direction in writing.

X. QUALITY ASSURANCE

10.1 The Respondent shall use quality assurance, quality control, and chain of custody procedures in accordance with the following documents while conducting all sample collection and analysis activities required by this Consent Order:

(a) "EPA NEIC Policies and Procedures Manual" (EPA Document 330/9-78-001-R (revised August 1991));

(b) "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," (QAMS-005/80 (December 1980)); and

(c) "QA/QC Guidance for Removal Activities," (EPA/540/G-90/004 (April 1990)).

(d) "EPA Guidance for Quality Assurance Project Plans," EPA QA/G-5, (EPA/600/R-98/018, (February 1998));

(e) "EPA Requirements for Quality Assurance Project Plans," EPA QA/R5, (EPA/240/B-01/003, (March 2001)); and

(f) "Guidance for the Data Quality Objective Process," EPA QA/G4, (EPA/600/R-96/055, (August 2000)).

10.2 The Respondent shall consult with EPA in planning for, and prior to, all sampling and analysis required by the approved RAP. The Respondent shall use a laboratory(s) which has a documented Quality Assurance Program that complies with EPA guidance document QAMS-005/80.

XI. ACCESS

11.1 As of the effective date of this Consent Order, Respondent shall provide to EPA and its employees, agents, consultants, contractors and other authorized and/or designated representatives, for the purposes of conducting and/or overseeing the Work, access to all property owned or controlled by Respondent wherein Work must be undertaken. Such access shall permit EPA and its employees, agents, consultants, contractors and other authorized and designated representatives to conduct all activities described in paragraph 11.3 of this Consent Order.

11.2 To the extent that property wherein Work must be undertaken is presently owned or controlled by parties other than the Respondent, the Respondent shall use its best efforts to obtain Site access agreements from the present owners. Best efforts shall include, but not be limited to, agreement to reasonable conditions for access and/or the payment of reasonable fees. Such access agreements shall be finalized as soon as practicable but no later than thirty (30) calendar days after receiving EPA's written approval to proceed. Such agreements shall provide reasonable access for the Respondent and their employees, agents, consultants, contractors and other authorized and designated representatives to conduct the work, and for EPA and its designated representatives to conduct the activities outlined in paragraph 11.3 below. In the event that any property owner refuses to provide such access or access agreements are not obtained within the time designated above, whichever occurs sooner, the Respondent shall notify EPA at that time, in writing, of all efforts to obtain access and the circumstances of the failure to obtain such access. EPA may then take steps to provide such access. Respondent shall reimburse the United States for all costs incurred in obtaining access which are not inconsistent with the NCP.

11.3 In accordance with law and regulation, as appropriate, EPA and its employees, agents, contractors, consultants and other authorized and designated representatives shall have the authority to enter and freely move about the location where the response actions and/or Work is being performed at all reasonable times for the purposes of, inter alia: inspecting Work, records, operating logs and contracts related to the Site; reviewing the progress of the Respondent in carrying out the terms of this Consent Order; conducting such tests as EPA deems necessary; using a camera, sound recording or other documentary type equipment; and verifying the data submitted to EPA by the Respondent. The Respondent shall permit such persons to inspect and copy all records, files, photographs, documents and other writings, including all sampling and monitoring data, in any way pertaining to the Work.

11.4 Respondent may make a claim of business confidentiality for information submitted pursuant to this Consent Order in the manner described in 40 C.F.R. § 2.203(b). Such an assertion shall be adequately substantiated in accordance with 40 C.F.R. § 2.204(e)(4) at the time the assertion is made. Information subject to a confidentiality claim shall be made available to the public by EPA only in accordance with the procedures set forth in 40 C.F.R. Part 2, Subpart B. If no such claim of business confidentiality accompanies the information when it is submitted or made available to EPA, the submitted information may be made available to the public by EPA without further notice to Respondent.

11.5 Notwithstanding any other provision in this Order to the contrary, except for Paragraph 11.6, the Respondent may withhold records, documents, and any other forms of information covered by any privilege or protection recognized under federal law and applied by federal courts in actions commenced by the United States. In the event that the Respondent withholds a document as privileged, the Respondent shall provide EPA with the title of the document, the date of the document, the name(s) of the author(s) and addressee(s)/recipient(s), a description of the nature of the document and identification of the privilege asserted at the time such document is required to be provided to EPA.

11.6 No claim of confidentiality or privilege shall be made regarding any data required to be submitted pursuant to this Consent Order including, but not limited to, sampling, analytical, monitoring, hydrogeologic, scientific, chemical or engineering data, or documents or information evidencing conditions at or around the Site. Nor shall such claims be made for analytical data; Site safety data; Site monitoring data; operational logs; hazardous waste manifests; identities of treatment, storage and/or storage facilities used; identities of transporters used; and/or identities of any contractors or subcontractors used in performing work required by this Consent Order.

11.7 Notwithstanding any provision of this Consent Order, EPA retains all of its access and information-gathering authorities and rights under CERCLA and any other applicable statute and regulation.

XII. DISPUTE RESOLUTION

12.1 Except as provided elsewhere in this Consent Order, if the Respondent objects to any EPA notification of deficiency, disapproval or other EPA action taken pursuant to this Consent Order, including billings for oversight costs, the Respondent shall notify EPA in writing of its objection(s) within fourteen (14) calendar days of receipt of such notification or action.

12.2 EPA and the Respondent shall have fourteen (14) calendar days from the receipt by EPA of the notification of objection to reach agreement. If agreement cannot be reached on any issue within this fourteen (14)-day period, EPA will provide a written statement of its decision to the Respondent. Respondent's obligations under this Consent Order shall not be tolled by submission of any objection for dispute resolution under this Section XII.

12.3 In order to prevail in any dispute regarding oversight costs, Respondent must demonstrate that the costs have been calculated incorrectly or have been incurred in a manner inconsistent with the NCP.

12.4 Following resolution of the dispute, as provided by this Section XII, Respondent shall perform the Work that was the subject of the dispute in accordance with the agreement reached or EPA's decision. To the extent that Respondent does not prevail upon resolution of any dispute involving contested costs, Respondent shall submit to EPA, within fourteen (14) calendar days of receipt of such resolution, all outstanding oversight costs determined to be owed to EPA, including any accrued interest, as specified in paragraph 13.1 below.

12.5 Notwithstanding any other provision of this Consent Order, no action or decision by EPA pursuant to this Consent Order shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XIII. DELAY IN PERFORMANCE AND STIPULATED PENALTIES

13.1 For each day, or portion thereof, that Respondent fails to comply with any requirement of this Consent Order at the time and in the manner set forth herein, the Respondent shall be liable upon demand to EPA for the sums set forth below as stipulated penalties. Checks shall be made payable to the "Hazardous Substance Superfund" and shall be transmitted to:

U.S. Environmental Protection Agency, Region III
Attention: Superfund Accounting
P.O. Box 360515
Pittsburgh, PA 15251-6515

Payment shall be made by cashier's or certified check within thirty (30) calendar days of receipt of demand. Interest at the rate of the current annualized treasury bill rate shall begin to accrue on the unpaid balance at the end of the thirty day period pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). A copy of the transmittal letter shall be sent simultaneously to the EPA Project Coordinator at the address identified in Section IX of this Consent Order and to: EPA Region III Hearing Clerk (3RC00), 1650 Arch Street, Philadelphia, PA 19103.

13.2 Stipulated penalties shall accrue in the amount of one thousand dollars ($1,000) per calendar day per violation. Neither the accrual of nor demand for stipulated penalties set forth in this Section XIII shall preclude EPA from pursuing other penalties or sanctions available to EPA for Respondent's failure to comply with the requirements of this Consent Order.

XIV. FORCE MAJEURE AND NOTIFICATION OF DELAY

14.1 The Respondent, through its Project Coordinator, shall notify EPA of any delay or anticipated delay in achieving compliance with any requirement of this Consent Order. Such notification shall be made verbally as soon as possible but not later than two (2) calendar days after Respondent becomes aware or should have become aware of any such delay or anticipated delay, and in writing no later than seven (7) calendar days after Respondent becomes aware, or should have become aware, of such delay or anticipated delay. Such written notification shall be certified by the Project Coordinator in accordance with Section XXII of this Consent Order and shall fully describe the nature of the delay, including how it may affect the Work, RAP and schedule; the actions that will be or have been taken to mitigate, prevent and/or minimize further delay; and the timetable according to which the future actions to mitigate, prevent and/or minimize the delay will be taken. The Respondent shall ensure that its Project Coordinator provides Respondent with immediate notification of any project delays. The Respondent shall adopt all reasonable measures to avoid and minimize such delay.

14.2 To the extent Respondent intends to claim that any delay or anticipated delay described by Respondent in accordance with paragraph 14.1 was or will be caused by circumstances beyond its control, Respondent shall, within fourteen (14) calendar days after Respondent becomes aware, or should have become aware, of such delay or anticipated delay, submit to EPA a "Notice of Force Majeure" in which Respondent fully demonstrates that the delay was caused by circumstances beyond its control which could not have been overcome by due diligence, the necessity of the proposed length of the delay, and that the Respondent took and is taking all reasonable measures to avoid and minimize delay. The Respondent shall have the burden of proving these facts to EPA. Any "Notice of Force Majeure" shall be certified by a responsible official of Respondent pursuant to paragraph 22.1(b) of this Consent Order.

14.3 Any such delay that EPA determines (1) has resulted or will result from circumstances beyond the control of the Respondent and (2) that could not and cannot be overcome by due diligence on the Respondent's part, shall not be deemed to be a violation of Respondent's obligation(s) under this Consent Order, and shall not subject Respondent to stipulated penalties under this Consent Order for that particular delay. In such event, the schedule affected by the delay shall be extended for a period EPA deems necessary to complete the Work on an expedited basis, but no greater than a period equal to the delay directly resulting from such circumstances. Increased costs of performance of the requirements of this Consent Order or changed economic circumstances shall not be considered circumstances beyond the control of the Respondent. Delay in one item or component of Work or the RAP does not justify delay in timely achievement of other items or components. Each delay must be separately addressed and substantiated according to the provisions of paragraphs 14.1 and 14.2 above, provided, however, that delays arising from the same or related events may be addressed in a single submission.

14.4 Failure of the Respondent to comply with the notice requirements of paragraphs 14.1 and 14.2 above shall constitute a waiver of the Respondent's right to invoke the benefits of this Section with respect to that delay.

14.5 In the event that EPA and the Respondent cannot agree that any delay in compliance with the requirements of this Consent Order has been or will be caused by circumstances beyond the control of the Respondent that cannot be overcome by due diligence, the dispute shall be resolved in accordance with the provisions of Section XII (Dispute Resolution) of this Consent Order.

XV. RESERVATION OF RIGHTS

15.1 Except as expressly provided in this Consent Order, (1) each party reserves all rights, claims, interests and defenses it may otherwise have, and (2) nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Consent Order, including the right to seek injunctive relief and/or the imposition of statutory penalties.

15.2 As provided by this Consent Order, EPA expressly reserves its right to disapprove of Work performed by Respondent; to halt Work being performed by Respondent if Respondent has not complied with an approved RAP or this Consent Order, or at any time EPA deems necessary to protect public health, welfare or the environment and to perform such Work; to request and require hereunder that Respondent correct and/or re-perform any and all Work disapproved by EPA; and/or to request or require that Respondent perform response actions in addition to those required by this Consent Order. Further, EPA reserves the right to undertake response action at any time EPA deems appropriate. In the event EPA requires Respondent, and Respondent declines, to correct and/or re-perform work that has been disapproved by EPA and/or to perform response actions in addition to those required by this Consent Order, EPA reserves the right to undertake such actions and seek reimbursement of the costs incurred and/or to seek any other appropriate relief. In addition, EPA reserves the right to undertake removal and/or remedial actions at any time that such actions are appropriate under the NCP and to seek reimbursement for any costs incurred and/or take any other action authorized by law.

15.3 EPA reserves the right to bring an action against the Respondent for recovery of all recoverable costs incurred by the United States related to this Consent Order which are not reimbursed by the Respondent, as well as any other costs incurred by the United States in connection with response actions conducted at the Site.

15.4 This Consent Order concerns certain response actions (Work described in Section VIII, above) concerning the Site. Such response actions might not fully address all contamination at the Site. Subsequent response actions which may be deemed necessary by EPA are not addressed by this Consent Order. EPA reserves all rights including, without limitation, the right to institute legal action against Respondent and/or any other parties in connection with the performance of any response actions not addressed by this Consent Order.

15.5 Nothing in this Consent Order shall limit the authority of the EPA On-Scene Coordinator as outlined in the NCP and CERCLA.

XVI. OTHER CLAIMS

16.1 Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation not bound by this Consent Order for any liability it may have relating in any way to the generation, storage, treatment, handling, transportation, release or disposal of any hazardous substances, hazardous wastes, pollutants or contaminants found at, taken to, or taken from the Site.

16.2 This Consent Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

16.3 By consenting to the issuance of this Consent Order, the Respondent waives any claim to reimbursement it may have under Sections 106(b), 111 and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611 and 9612.

XVII. OTHER LAWS

17.1 All Work shall be undertaken in accordance with the requirements of all applicable and/or relevant and appropriate local, State and Federal laws and regulations, as required by the NCP.

XVIII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

18.1 The effective date of this Consent Order shall be the date on which it is signed by EPA.

18.2 This Consent Order may be amended by mutual agreement of EPA and the Respondent. Such amendments shall be in writing and shall have as their effective date the date on which such amendments are signed by EPA. Modifications to the EPA-approved RAP and its implementation may be made by mutual agreement of the Project Coordinators. Such modifications shall be memorialized in writing by the Project Coordinators.

18.3 Any reports, plans, specifications, schedules, or other submissions required by this Consent Order are, upon approval by EPA, incorporated into this Consent Order. Any non-compliance with such EPA-approved reports, plans, specifications, schedules, or other submissions shall be considered non-compliance with the requirements of this Consent Order and will subject the Respondent to the requirements of Section XIII (Delay in Performance and Stipulated Penalties), above. Determinations of non-compliance will be made by EPA.

18.4 No informal advice, guidance, suggestions or comments by EPA regarding reports, plans, specifications, schedules or other submissions by the Respondent or the requirements of this Consent Order will be construed as relieving the Respondent of its obligation to obtain formal approval when required by this Consent Order, and to comply with the requirements of this Consent Order unless formally modified.

XIX. LIABILITY OF THE UNITED STATES GOVERNMENT

19.1 Neither the United States Government nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions of Respondent, or of its employees, agents, servants, receivers, successors or assigns, or of any persons including, but not limited to, firms, corporations, subsidiaries, contractors or consultants in carrying out the Work, nor shall the United States Government or any agency thereof be held out as a party to any contract entered into by Respondent in carrying out the Work.

XX. INDEMNIFICATION AND HOLD HARMLESS

20.1 Respondent agrees to indemnify and hold harmless the United States, its agencies, departments, agents, officers, employees and representatives from any and all causes of action caused by any acts or omissions of Respondent or its contractors in carrying out the work required by this Consent Order.

XXI. REIMBURSEMENT OF COSTS

21.1 EPA shall submit to Respondent periodic and/or a final accounting(s) of oversight costs incurred by the U.S. Government with respect to this Consent Order. Oversight costs shall consist of all costs, including indirect costs, incurred by EPA, its employees, agents, contractors, consultants and other authorized and/or designated representatives in connection with EPA's oversight of the Work.

21.2 Respondent shall, within thirty (30) calendar days of receipt of the accounting, remit a check for the amount of those costs made payable to the "Hazardous Substance Superfund." Interest at a rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a) shall begin to accrue on the unpaid balance from the day after the expiration of the thirty-day period notwithstanding any dispute or an objection to any portion of the costs. Checks shall specifically reference the Site and shall be transmitted as specified in Section XIII of this Consent Order.

21.3 In the event the Respondent disputes, pursuant to Section XII of this Consent Order, payment of any costs identified in the accounting provided pursuant to Paragraph 21.1, the Respondent shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of West Virginia and remit to that escrow account funds equivalent to the amount of the contested costs. The Respondent shall send to the EPA Project Coordinator a copy of the transmittal letter and check paying the uncontested costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, the Respondent shall initiate the Dispute Resolution procedures in Section XII of this Consent Order. If EPA prevails in the dispute, within 5 days of the resolution of the dispute, the Respondent shall pay the sums due (with accrued interest) to EPA in the manner described in Section XIII of this Consent Order. If the Respondent prevails concerning any aspect of the contested costs, the Respondent shall pay that portion of the costs (plus associated accrued interest) for which it did not prevail to EPA in the manner described in Section XIII of this Consent Order; Respondent shall be disbursed any balance of the escrow account.

XXII. CERTIFICATION OF COMPLIANCE

22.1 (a) Unless otherwise required by the terms of this Consent Order, any notice, report, certification, data presentation or other document submitted by Respondent under or pursuant to this Consent Order which discusses, describes, demonstrates or supports any finding or makes any representation concerning Respondent's compliance or non-compliance with any requirement(s) of this Consent Order shall be certified by the Respondent, a responsible official of the Respondent or by the Project Coordinator for the Respondent. The term "responsible official" means: (i) a president, secretary, treasurer or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $35 million (in 1987 dollars when the consumer price index was 345.3), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. The responsible official of a partnership or sole proprietorship means the general partner or the proprietor, respectively.

(b) The written Final Report required by paragraph 8.11 of this Consent Order, any written notification described in paragraph 12.1 of this Consent Order and any "Notice of Force Majeure" described in paragraph 14.2 of this Consent Order shall be certified by the Respondent or a responsible official of Respondent.

22.2 The certification required by paragraph 22.1 of this Consent Order shall be in the following form:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the Work at the 8th and Plutus Superfund Site, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
>
> Signature:______________________
> Name (print):___________________
> Title: _________________________

22.3 Submission of documents pursuant to this Consent Order, which documents Respondent knows or should know contain materially false information, shall constitute a failure to comply with this Consent Order and shall subject Respondent to, among other things, stipulated penalties whether or not a responsible official of Respondent has certified the document.

XXIII. SHIPMENT OF HAZARDOUS SUBSTANCES

23.1 Respondent shall, prior to any off-Site shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification to the state environmental agency in the receiving state and to EPA's Project Coordinator of such shipment of hazardous substances. However, the notification to EPA of shipments shall not apply to any such off-site shipments when the total volume of all such shipments will not exceed ten (10) cubic yards. Notifications to States in those circumstances shall be governed by applicable state law.

23.2 The notification required by paragraph 23.1 shall be in writing and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation of the hazardous substances. Respondent shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state or to a facility in another state.

23.3 The identity of the receiving facility and state will be determined by Respondent. Respondent shall provide all relevant information, including information required by paragraph 23.1, above, relating to the off-site shipments as soon as practicable but no later than one (1) business day before the hazardous substances are actually shipped.

XXIV. RECORD RETENTION

24.1 Respondent shall preserve all documents and information relating to the Work performed under this Consent Order, or relating to the hazardous substances found at or released from the Site, for six (6) years following completion of the response action required by this Consent Order. In addition, Respondent shall also retain, as appropriate, monthly reports on analytical services pursuant to OSWER Directive No. 9240.0-2B, "Extending the Tracking of Analytical Services to Potentially Responsible Party-Lead Superfund Sites," (July 6, 1992). At the end of this six year period and thirty (30) days before any document or information is destroyed, Respondent shall notify EPA that such documents and information are available to EPA for inspection, and upon request, shall provide the originals or copies of such documents and information to EPA.

XXV. POST REMOVAL SITE CONTROL

25.1 Respondent agrees to maintain the integrity of the response action pursuant to the arrangement proposed in paragraph 8.3 (o), and approved by EPA pursuant to paragraph 8.9, above.

XXVI. DEFINITIONS

26.1 "Business days" as used in this Order shall mean every day of the week except Saturdays, Sundays and federal holidays.

26.2 "Calendar days" as used in this Order shall mean every day of the week, including Saturdays, Sundays and federal holidays.

26.3 "Days" as used herein shall mean "calendar days" unless specified otherwise.

26.4 All terms not defined herein shall have the meanings set forth in CERCLA and the NCP.

XXVII. NOTICE OF COMPLETION

27.1 When EPA determines, after EPA's review and approval of the Final Report required pursuant to paragraph 8.11 of this Consent Order, that all response action specified in Section VIII of this Consent Order has been fully performed, and upon receipt of costs and penalties assessed by EPA, with the exception of any continuing obligations required by this Consent Order, including those requirements specified in Sections XV ("Reservation of Rights"), XVI ("Other Claims"), XIX ("Liability of the United States"), XX ("Indemnification and Hold Harmless"), XXIV ("Record Retention") and XXV ("Post Removal Site Control"), EPA will provide a notice of completion to the Respondent.

FOR RESPONDENT:

DMatschullat

[Signature]

Please Type the Following:

Name: Dale L. Matschullat

Title: Vice-President

Address: Newell Rubbermaid Inc.
10B Glenlake Parkway, Suite 600
Atlanta, GA 30328

FOR EPA:

ABRAHAM FERDAS
Director, Hazardous Site Cleanup Division
U.S. Environmental Protection Agency
Region III

9/30/04
Date

Attachments: Exhibit A – Legal Description of Former Pottery Manufacturing Facility
Exhibit B – Site Map
Exhibit C – March 12, 2004, Action Memorandum (with attachments)
Exhibit D – EPA Region III Risk-Based Concentration ("RBC") Table

CONDITION ASSESSMENT STUDY

OF

ABANDONED ANCHOR HOCKING CERAMICS PLANT
CHESTER, WV

PREPARED FOR:

ENSR INTERNATIONAL

DRAWING LIST:

NO.	DESCRIPTION (ISSUES & REVISIONS)	DATE	DR.	CH.

SCALE: NTS
DR. SWB DATE 2/8/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

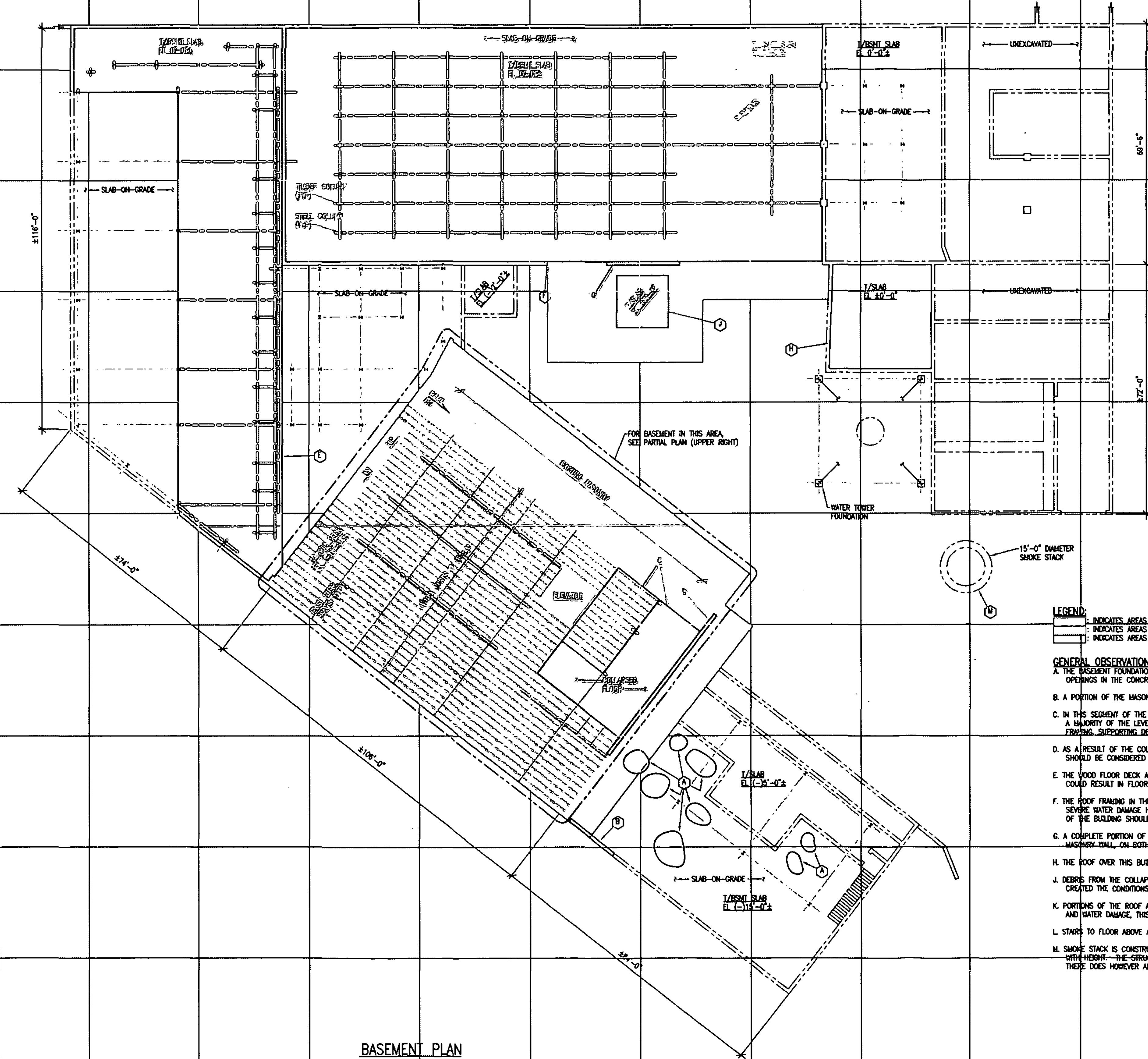
PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE

REV. 0
CLIENT: ENSR International
Pittsburgh, PA
PROJECT NO. 2004.0284.000

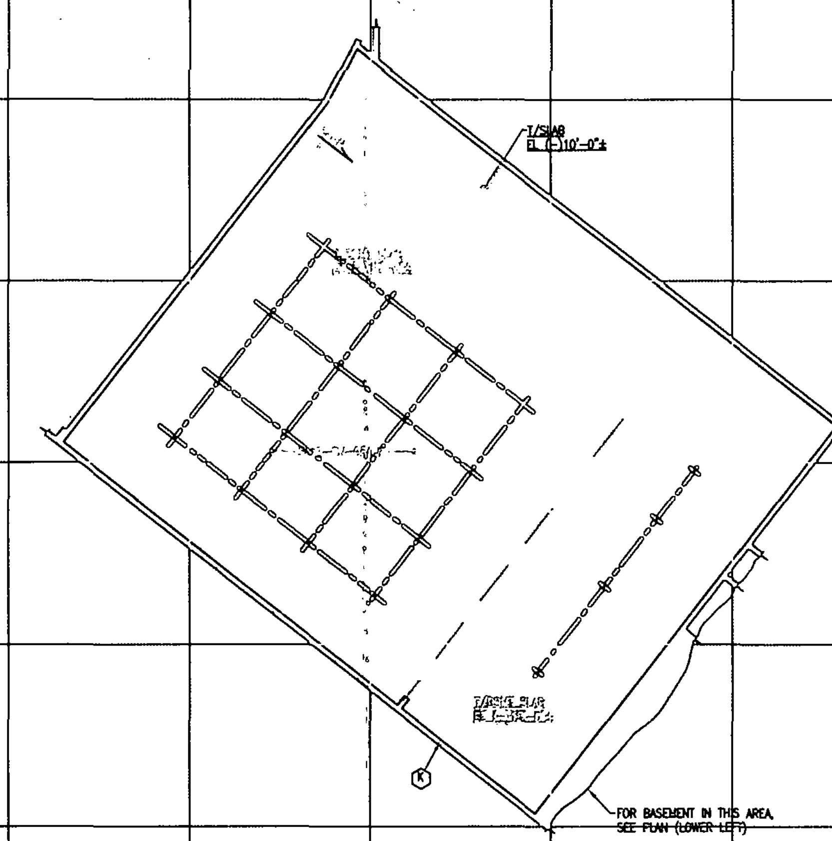
DWG. NO. S0.0

AR100216



BASEMENT PLAN

SCALE: 1/16" = 1'-0"



PARTIAL BASEMENT PLAN

SCALE: 1/16" = 1'-0"

LEGEND:

- : INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

A. THE BASEMENT FOUNDATION SLAB HAS SEVERAL HOLES THROUGH THE ENTIRE THICKNESS, EXPOSING STEEL REINFORCING. SOME OPENINGS IN THE CONCRETE SLAB REVEAL BELOW GRADE TANKS FILLED WITH LIQUID.

B. A PORTION OF THE MASONRY WALL, BELOW AN OPENING IN SAID WALL, HAS BEEN KNOCKED OUT.

C. IN THIS SEGMENT OF THE BUILDING, THE LEVEL TWO AND ROOF FRAMING HAVE BOTH COLLAPSED ON TO THE LEVEL ONE FRAMING. A MAJORITY OF THE LEVEL ONE FRAMING HAS SINCE COLLAPSED TO THE BASEMENT. HOWEVER, A PORTION OF LEVEL ONE FRAMING, SUPPORTING DEBRIS FROM THE ABOVE LEVELS, REMAINS ERECTED. THIS AREA IS TO BE CONSIDERED EXTREMELY UNSTABLE.

D. AS A RESULT OF THE COLLAPSE LISTED IN NOTE C, THE MASONRY WALL IS NO LONGER BRACED. ALL AREAS NEAR THIS WALL SHOULD BE CONSIDERED UNSAFE.

E. THE WOOD FLOOR DECK ABOVE, SUPPORTING BRICKS, TIMBER AND OTHER DEBRIS, HAS SEVERE WATER DAMAGE. EXTRA DEAD LOAD COULD RESULT IN FLOOR COLLAPSE. THIS AREA SHOULD BE CONSIDERED STABLE, BUT NOT SAFE.

F. THE ROOF FRAMING IN THIS AREA HAS COLLAPSED TO THE SECOND FLOOR, CAUSING PORTIONS OF THE SECOND FLOOR FRAMING TO FAIL. SEVERE WATER DAMAGE HAS OCCURRED TO ALL REMAINING FRAMING. AS A RESULT OF THE DECAY AND ADDED DEAD LOAD, THIS AREA OF THE BUILDING SHOULD BE CONSIDERED EXTREMELY UNSTABLE.

G. A COMPLETE PORTION OF THE EXTERIOR MASONRY WALL AND ALL FLOOR FRAMING IN THIS AREA, HAVE COLLAPSED. THE EXTERIOR MASONRY WALL, ON BOTH SIDES OF THE VOID ARE UNBRACED AND EXTREMELY UNSTABLE. AVOID THIS AREA.

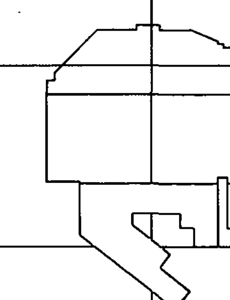
H. THE ROOF OVER THIS BUILDING HAS COLLAPSED. THE REMAINING WOOD WALLS ARE UNBRACED AND SHOULD BE CONSIDERED UNSAFE.

J. DEBRIS FROM THE COLLAPSED EXTERIOR MASONRY WALL HAS LANDED ON THE ROOF OF THIS BUILDING. THE ADDED DEAD LOAD HAS CREATED THE CONDITIONS FOR A COLLAPSE. THIS BUILDING IS UNSTABLE.

K. PORTIONS OF THE ROOF AND A MAJORITY OF THE LEVEL TWO FRAMING HAS COLLAPSED TO LEVEL ONE. DUE TO THE ADDED DEAD LOAD AND WATER DAMAGE, THIS BUILDING SHOULD BE CONSIDERED UNSTABLE.

L. STAIRS TO FLOOR ABOVE ARE PARTIALLY COLLAPSED.

M. SMOKE STACK IS CONSTRUCTED WITH MASONRY BRICK AND IS APPROXIMATELY 15'-0" IN DIAMETER AT THE BASE AND TAPERS INWARD WITH HEIGHT. THE STRUCTURE APPEARS TO BE IN FAIR TO GOOD CONDITION WITH ONLY MINOR MORTAR JOINT DETERIORATION EVIDENT. THERE DOES HOWEVER APPEAR TO BE SEVERAL LOOSE PIECES OF BRICK AT THE EXTREME TOP WHICH MAY BE SUBJECT TO FALLING.



KEY PLAN

NO.	ISSUES & REVISIONS DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SDB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

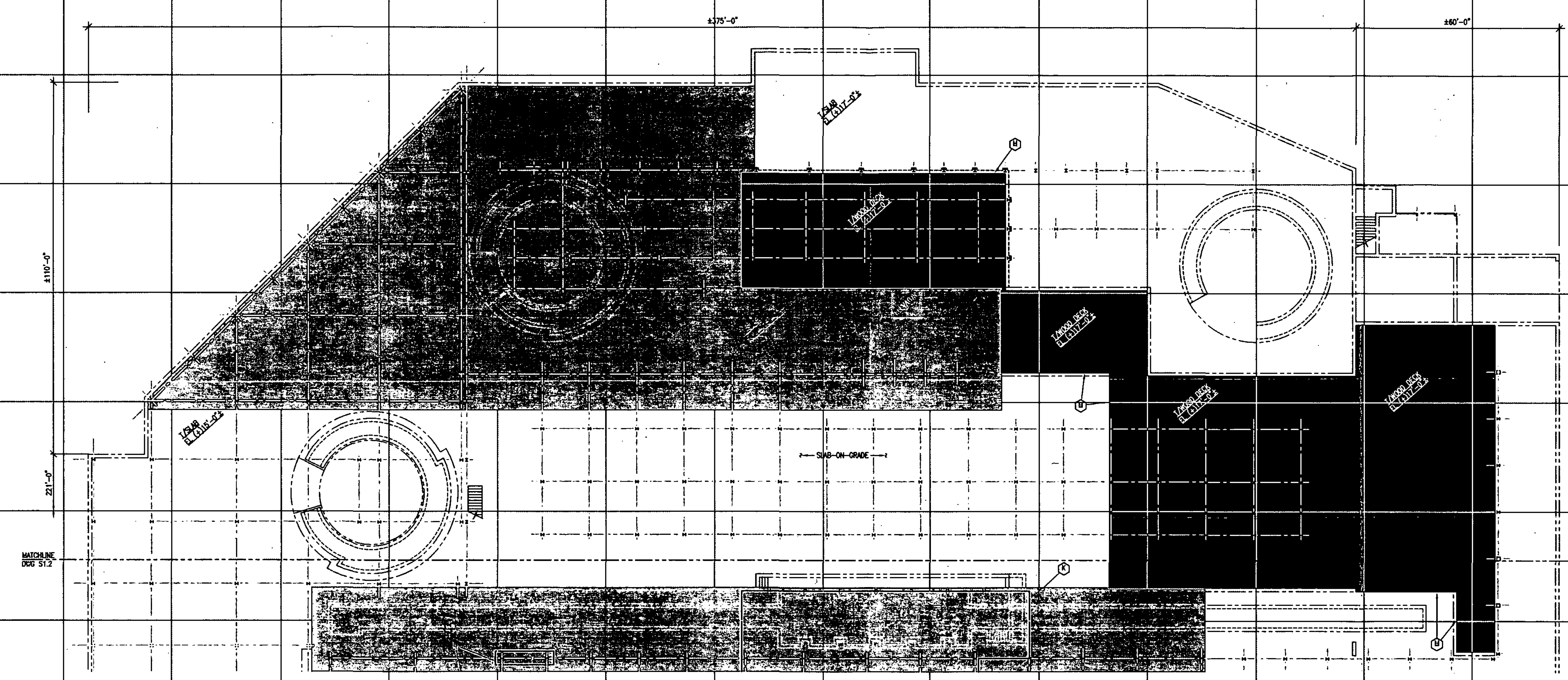
PROJECT: Anchor Hocking Ceramics Plant, Chester, WV

TITLE: Basement Plan

REV. 0 | CLIENT: ENSR International, Pittsburgh, PA | PROJECT NO. 2004.0284.000

DWG. NO. S1.1

AR100217



SLAB-ON-GRADE PLAN

SCALE: 1/16" = 1'-0"

LEGEND:

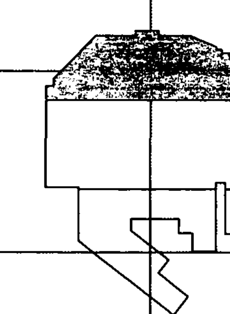
: INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
: INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
: INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

K. THE LOW ROOF IN THIS AREA HAS COLLAPSED. ADJACENT ROOF FRAMING HAS BEEN WEAKENED AND COULD POSSIBLY COLLAPSE.

L. WOOD BEAMS ALONG THE ROOF LOW POINT HAVE SEVERE WATER DAMAGE. SOME BEAMS SUPPORTING THE ROOF JOISTS HAVE FAILED. MOST OF THE LOW ROOF IN THIS AREA IS UNSTABLE.

M. THE WOOD FLOOR DECK HAS SEVERE WATER DAMAGE. ALL WOOD DECKING SHOULD BE CONSIDERED UNSAFE AND AVOIDED.



KEY PLAN

ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

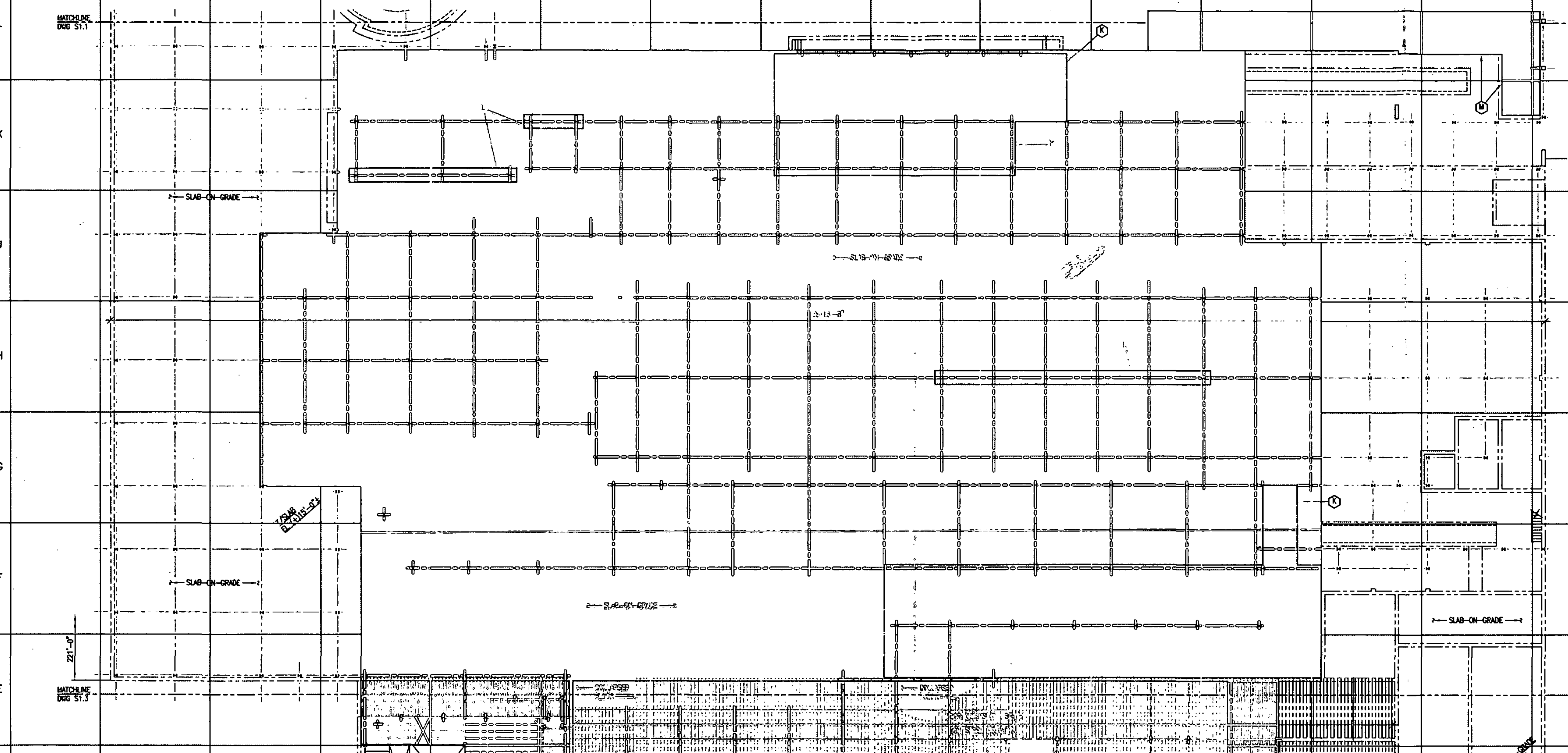
WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

PROJECT: Anchor Hocking Ceramics Plant, Chester, WV

TITLE: Slab-on-Grade Plan

REV. 0 | CLIENT: ENSR International, Pittsburgh, PA | PROJECT NO. 2004.0284.000

DWG. NO. S1.2



SLAB-ON-GRADE/FIRST FLOOR FRAMING PLAN

SCALE: 1/16" = 1'-0"

LEGEND:

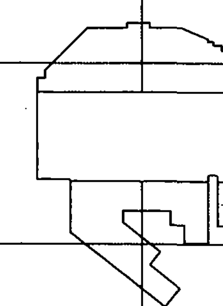
: INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
: INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
: INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

K. THE LOW ROOF IN THIS AREA HAS COLLAPSED. ADJACENT ROOF FRAMING HAS BEEN WEAKENED AND COULD POSSIBLY COLLAPSE.

L. WOOD BEAMS ALONG THE ROOF LOW POINT HAVE SEVERE WATER DAMAGE. SEVERAL BEAMS SUPPORTING THE ROOF JOISTS HAVE FAILED. MOST OF THE LOW ROOF IN THIS AREA IS UNSTABLE.

M. THE WOOD FLOOR DECK HAS SEVERE WATER DAMAGE. ALL WOOD DECKING SHOULD BE CONSIDERED UNSAFE AND AVOIDED.



KEY PLAN

ISSUES & REVISIONS				
NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

CONSULTING ENGINEERS
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PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)
WHITNEY, BAILEY, COX & MAGNANI

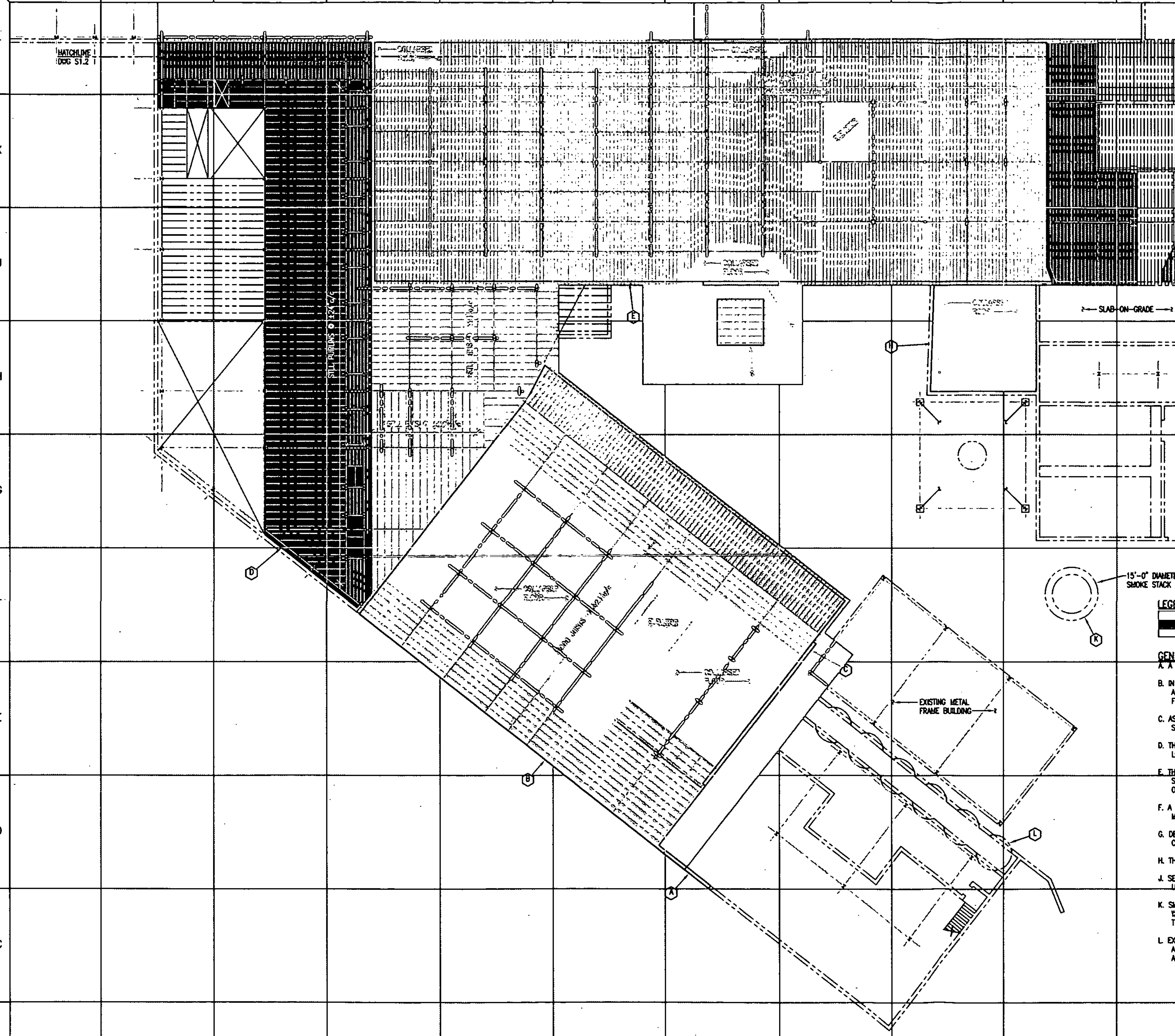
PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE: Slab-on-Grade/First Floor Framing Plan

REV. 0 | CLIENT: ENSR International, Pittsburgh, PA | PROJECT NO. 2004.0284.000

DWG. NO. S1.3

Feb 04, 2005 DWG Name: P:\2004\040284\Drawings\Structural\Drawings\chester sw.dwg Updated By: sbarker



LEGEND:

: INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.

: INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.

: INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

A. A PORTION OF THE MASONRY WALL, BELOW AN OPENING IN SAID WALL, HAS BEEN KNOCKED OUT.

B. IN THIS SEGMENT OF THE BUILDING, THE LEVEL TWO AND ROOF FRAMING HAVE BOTH COLLAPSED ON TO THE LEVEL ONE FRAMING. A MAJORITY OF THE LEVEL ONE FRAMING HAS SINCE COLLAPSED TO THE BASEMENT. HOWEVER, A PORTION OF LEVEL ONE FRAMING, SUPPORTING DEBRIS FROM THE ABOVE LEVELS, REMAINS ERECTED. THIS AREA IS TO BE CONSIDERED EXTREMELY UNSTABLE.

C. AS A RESULT OF THE COLLAPSE LISTED IN NOTE B, THE MASONRY WALL IS NO LONGER BRACED. ALL AREAS NEAR THIS WALL SHOULD BE CONSIDERED UNSAFE.

D. THE WOOD FLOOR DECK IS SUPPORTING BRICKS, TIMBER AND OTHER DEBRIS, AND HAS SEVERE WATER DAMAGE. THE EXTRA DEAD LOAD COULD RESULT IN A FLOOR COLLAPSE. THIS AREA SHOULD BE CONSIDERED UNSTABLE.

E. THE ROOF FRAMING IN THIS AREA HAS COLLAPSED TO THE SECOND FLOOR, CAUSING PORTIONS OF THE SECOND FLOOR FRAMING TO FAIL. SEVERE WATER DAMAGE HAS OCCURED TO ALL REMAINING FRAMING. AS A RESULT OF THE DECAY AND ADDED DEAD LOAD, THIS AREA OF THE BUILDING SHOULD BE CONSIDERED EXTREMELY UNSATBLE.

F. A COMPLETE PORTION OF THE EXTERIOR MASONRY WALL AND ALL FLOOR FRAMING IN THIS AREA, HAVE COLLAPSED. THE EXTERIOR MASONRY WALL, ON BOTH SIDES OF THE VOID IS UNBRACED AND UNSTABLE.

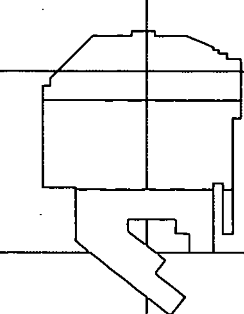
G. DEBRIS FROM THE COLLAPSED EXTERIOR MASONRY WALL HAS LANDED ON THE ROOF OF THIS BUILDING. THE ADDED DEAD LOAD HAS CREATED THE CONDITIONS FOR A COLLAPSE. THIS BUILDING IS UNSTABLE.

H. THE ROOF OVER THIS BUILDING HAS COLLAPSED. THE REMAINING WOOD WALLS ARE UNBRACED AND SHOULD BE CONSIDERED UNSAFE.

J. SEVERE WATER DAMAGE HAS OCCURED IN THE WOOD FLOOR DECK. THE FLOOR IN THIS AND ADJACENT AREAS SHOULD BE CONSIDERED UNSAFE.

K. SMOKE STACK IS CONSTRUCTED WITH MASONRY BRICK AND IS APPROXIMATELY 15'-0" IN DIAMETER AT THE BASE AND TAPERS INWARD WITH HEIGHT. THE STRUCTURE APPEARS TO BE IN FAIR TO GOOD CONDITION WITH ONLY MINOR MORTAR JOINT DETERIORATION EVIDENT. THERE DOES HOWEVER APPEAR TO BE SEVERAL LOOSE PIECES OF BRICK AT THE EXTREME TOP WHICH MAY BE SUBJECT TO FALLING.

L. EXISTING SILOS ARE CONSTRUCTED WITH CAST IN PLACE CONCRETE AND APPEAR TO BE IN GOOD CONDITION W/VERY LITTLE CRACKING AND SPALLING EVIDENT. A HATCH LOCATED ON THE SOUTHERN MOST SILO IS OPEN WITH A STEEL DOOR THAT APPEARS TO BE DAMAGED AND MAY BE SUBJECT TO FALLING. CARE SHOULD BE TAKEN WHEN WORKING AROUND THE SILOS.



KEY PLAN

FIRST FLOOR FRAMING PLAN
SCALE: 1/16" = 1'-0"

ISSUES & REVISIONS				
NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE: First Floor Framing Plan

REV.	CLIENT	PROJECT NO.
0	ENSR International Pittsburgh, PA	2004.0284.000

DWG. NO. S1.4

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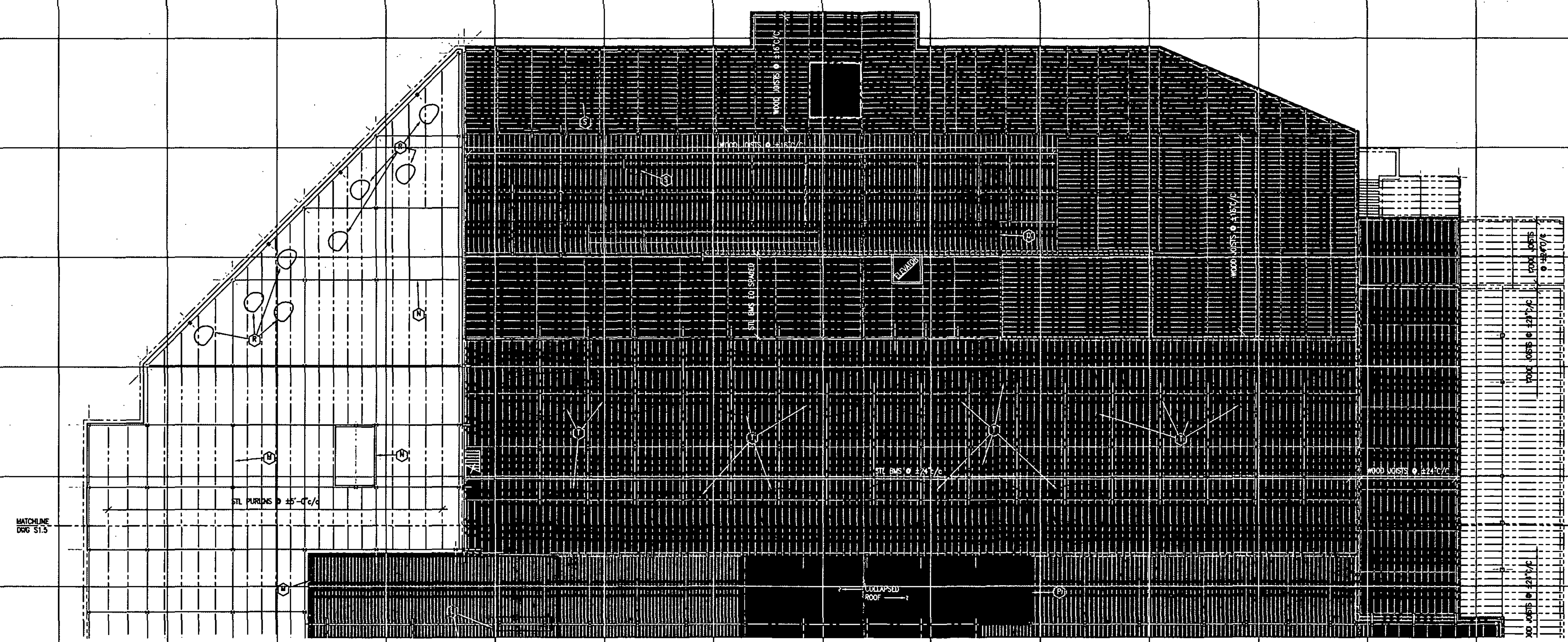

SECOND FLOOR/LOW ROOF FRAMING PLAN

SCALE: 1/16" = 1'-0"

LEGEND:

- : INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

L. WOOD BEAMS SUPPORTING ALONG THE ROOF LOW POINT HAVE SEVERE WATER DAMAGE. SOME BEAMS SUPPORTING THE ROOF JOISTS HAVE FAILED. MOST OF THE LOW ROOF IN THIS AREA IS UNSTABLE.

M. THIS AREA OF THE ROOF HAS SEVERAL SMALL HOLES WHERE THE ROOFING MATERIAL HAS COLLAPSED. PRECAUTIONS SHOULD BE TAKEN WHEN ENTERING THIS SPACE.

N. THE GLASS FOR THE SKYLIGHTS HAS BROKEN OUT. MINOR WATER DAMAGE HAS OCCURRED IN THIS AREA.

P. THE LOW ROOF IN THIS AREA HAS COLLAPSED. ADJACENT ROOF FRAMING HAS BEEN WEAKENED AND COULD POSSIBLY COLLAPSE.

Q. THE FLOOR FRAMING IN THIS AREA HAS SEVERE WATER DAMAGE AND HAS COLLAPSED. THIS AREA IS TO BE CONSIDERED UNSAFE.

R. PORTIONS OF ROOF DECKING HAS COLLAPSED LEAVING HOLES IN THE ROOF. PRECAUTIONS SHOULD BE TAKEN WHEN ENTERING THIS SPACE.

S. PORTIONS OF THE FLOOR DECKING HAVE COLLAPSED AS A RESULT FROM WATER DAMAGE. DEBRIS FROM A ROOF FRAMING COLLAPSE ABOVE THIS AREA HAS ADDED DEAD LOAD TO THE FLOOR WHICH COULD CAUSE MORE FRAMING TO FAIL.

T. THE FLOOR FRAMING HAS SEVERE WATER DAMAGE AND IS UNSTABLE.

KEY PLAN

ISSUES & REVISIONS				
NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. WDW DATE 2/18/05
APP. WDW DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
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600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

PROJECT: Anchor Hocking Ceramics Plant, Chester, WV

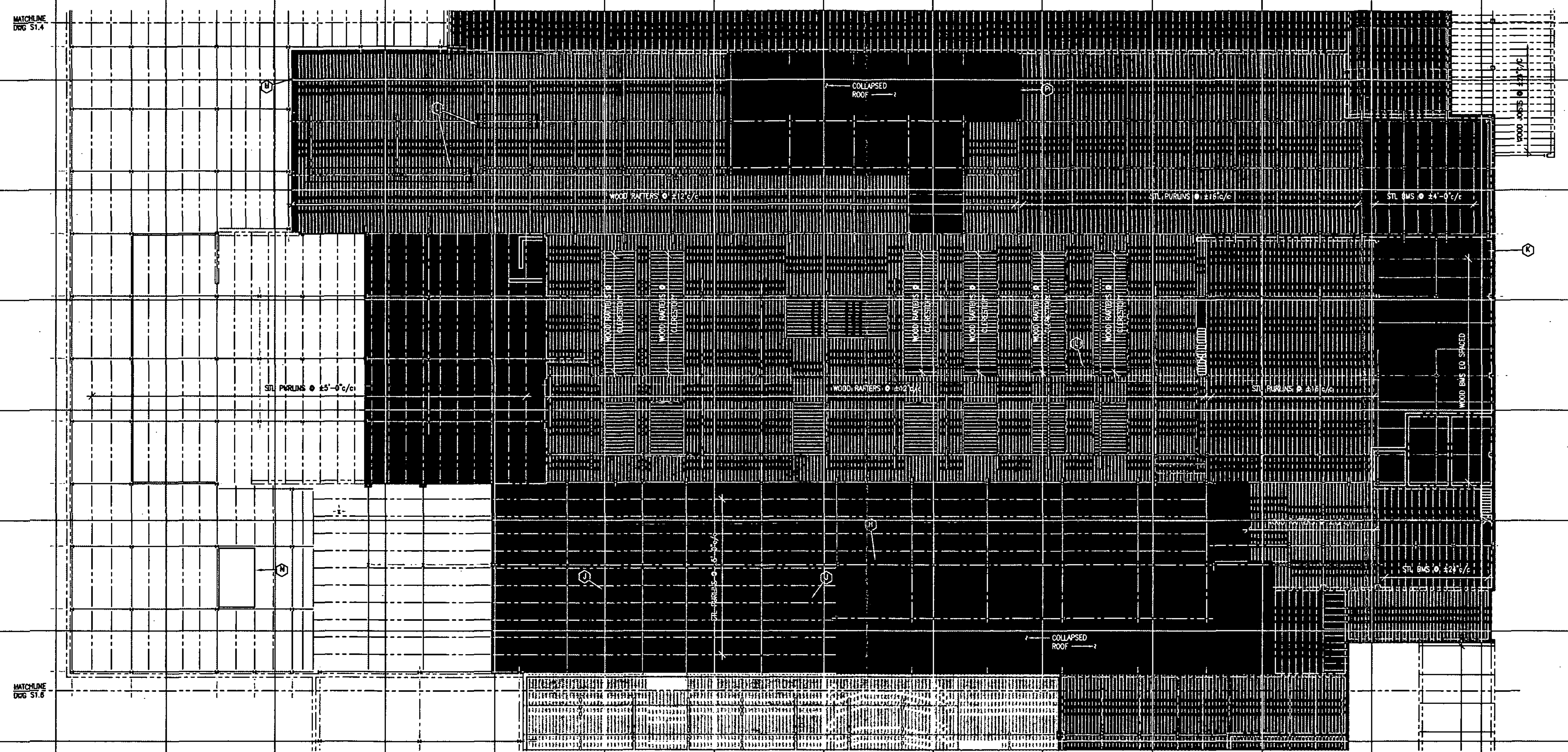
TITLE: Second Floor/Low Roof Framing Plan

CLIENT: ENSR International, Pittsburgh, PA

PROJECT NO. 2004.0284.000

REV. 0

DWG. NO. S1.5



SECOND FLOOR/LOW ROOF FRAMING PLAN

SCALE: 1/16" = 1'-0"

LEGEND:

- : INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

J. PORTIONS OF ROOF DECKING HAVE COLLAPSED LEAVING HOLES IN THE ROOF.

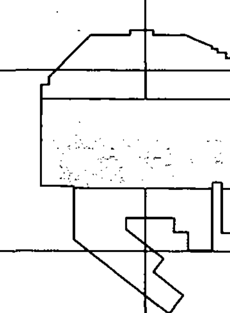
K. THE FLOOR FRAMING IN THIS AREA HAS WATER DAMAGE AND SHOULD BE CONSIDERED UNSTABLE.

L. WOOD BEAMS SUPPORTING ALONG THE ROOF LOW POINT HAVE SEVERE WATER DAMAGE. SOME BEAMS SUPPORTING THE ROOF JOISTS HAVE FAILED. MOST OF THE LOW ROOF IN THIS AREA IS UNSTABLE.

M. THIS AREA OF THE ROOF HAS SEVERAL SMALL HOLES WHERE THE ROOFING MATERIAL HAS COLLAPSED. THIS IS NOT A STRUCTURAL ISSUE, HOWEVER MORE ROOFING MATERIAL MAY FALL.

N. THE GLASS FOR THE SKYLIGHTS HAS BROKEN OUT. MINOR WATER DAMAGE HAS OCCURRED IN THIS AREA.

P. THE LOW ROOF IN THIS AREA HAS COLLAPSED. ADJACENT ROOF FRAMING HAS BEEN WEAKENED AND COULD POSSIBLY COLLAPSE.



KEY PLAN

NO.	DESCRIPTION	DATE	DR.	CH.
	ISSUES & REVISIONS			

SCALE: 1/16" = 1'-0"
DR. SMB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

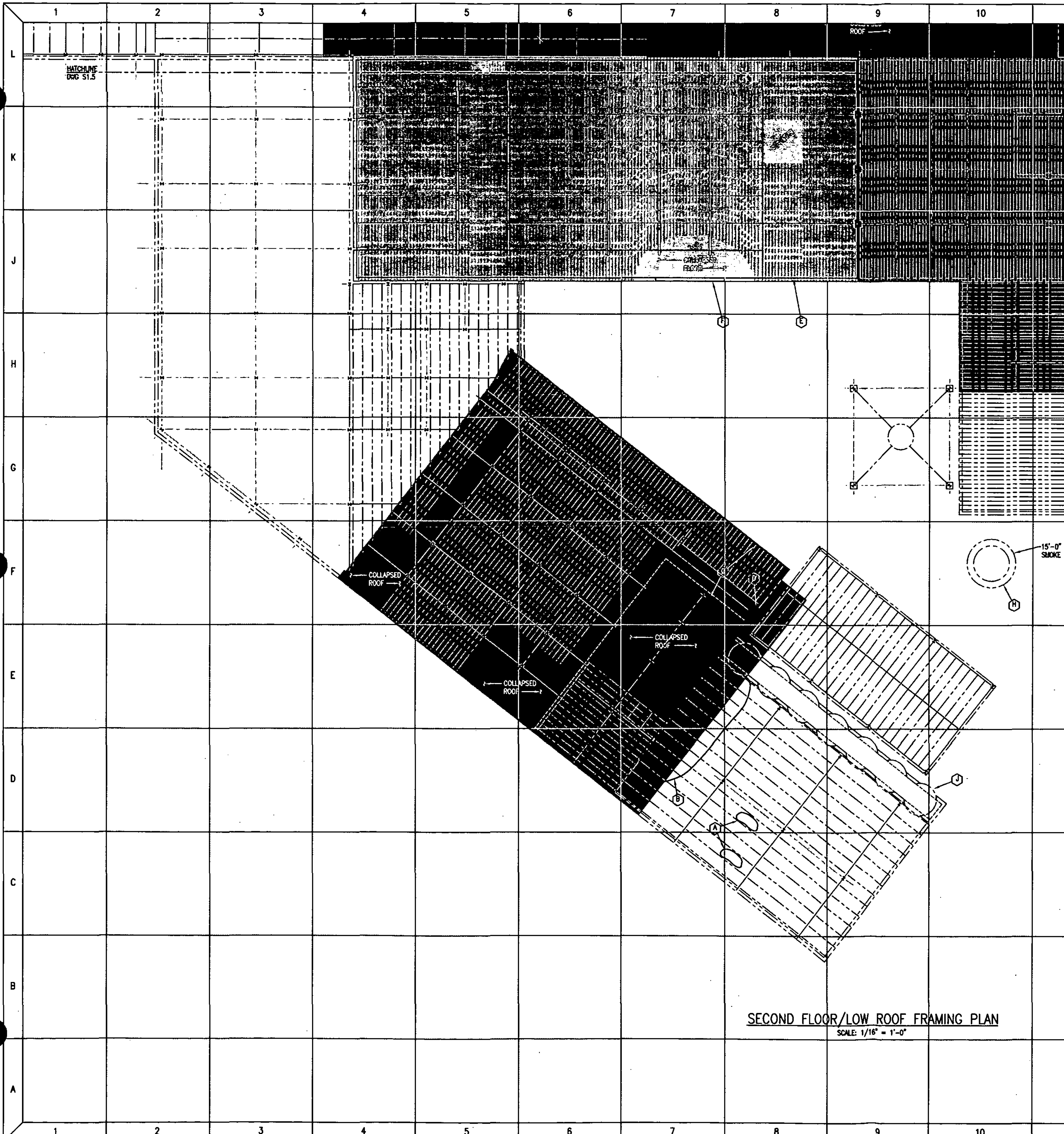
WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

PROJECT: Anchor Hocking Ceramics Plant, Chester, WV

TITLE: Second Floor/Low Roof Framing Plan

REV.	CLIENT	PROJECT NO.
0	ENSR International, Pittsburgh, PA	2004.0284.000

DWG NO. S1.6



SECOND FLOOR/LOW ROOF FRAMING PLAN

SCALE: 1/16" = 1'-0"

LEGEND:

- : INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- : INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

A. PORTIONS OF ROOF DECKING HAVE COLLAPSED LEAVING HOLES IN THE ROOF. THIS IS NOT A STRUCTURAL ISSUE, HOWEVER MORE ROOFING MATERIAL MAY FALL.

C. IN THIS SEGMENT OF THE BUILDING, THE LEVEL TWO AND ROOF FRAMING HAVE BOTH COLLAPSED ON TO THE LEVEL ONE FRAMING. A MAJORITY OF THE LEVEL ONE FRAMING HAS SINCE COLLAPSED TO THE BASEMENT. HOWEVER, A PORTION OF LEVEL ONE FRAMING, SUPPORTING DEBRIS FROM THE ABOVE LEVELS, REMAINS ERECTED. THIS AREA IS TO BE CONSIDERED EXTREMELY UNSTABLE.

D. AS A RESULT OF THE COLLAPSE LISTED IN NOTE C, THE MASONRY WALL IS NO LONGER BRACED. ALL AREAS NEAR THIS WALL SHOULD BE CONSIDERED UNSAFE.

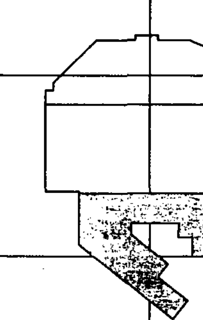
E. THE ROOF FRAMING IN THIS AREA HAS COLLAPSED TO THE SECOND FLOOR, CAUSING PORTIONS OF THE SECOND FLOOR FRAMING TO FAIL. SEVERE WATER DAMAGE HAS OCCURED TO ALL REMAINING FRAMING. AS A RESULT OF THE DECAY AND ADDED DEAD LOAD, THIS AREA OF THE BUILDING SHOULD BE CONSIDERED EXTREMELY UNSTABLE.

F. A COMPLETE PORTION OF THE EXTERIOR MASONRY WALL AND ALL FLOOR FRAMING IN THIS AREA, HAVE COLLAPSED. THE EXTERIOR MASONRY WALL, ON BOTH SIDES OF THE VOID ARE UNBRACED AND EXTREMELY UNSTABLE. AVOID THIS AREA.

G. THE FLOOR FRAMING IN THIS AREA HAS WATER DAMAGE. THE FRAMING IN THIS AREA SHOULD BE CONSIDERED UNSTABLE.

H. SMOKE STACK IS CONSTRUCTED WITH MASONRY BRICK AND IS APPROXIMATELY 15'-0" IN DIAMETER AT THE BASE AND TAPERS INWARD WITH HEIGHT. THE STRUCTURE APPEARS TO BE IN FAIR TO GOOD CONDITION WITH ONLY MINOR MORTAR JOINT DETERIORATION EVIDENT. THERE DOES HOWEVER APPEAR TO BE SEVERAL LOOSE PIECES OF BRICK AT THE EXTREME TOP WHICH MAY BE SUBJECT TO FALLING.

J. EXISTING SILOS ARE CONSTRUCTED WITH CAST IN PLACE CONCRETE AND APPEAR TO BE IN GOOD CONDITION W/VERY LITTLE CRACKING AND SPALLING EVIDENT. A HATCH LOCATED ON THE SOUTHERN MOST SILO IS OPEN WITH A STEEL DOOR THAT APPEARS TO BE DAMAGED AND MAY BE SUBJECT TO FALLING. CARE SHOULD BE TAKEN WHEN WORKING AROUND THE SILOS.



KEY PLAN

ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

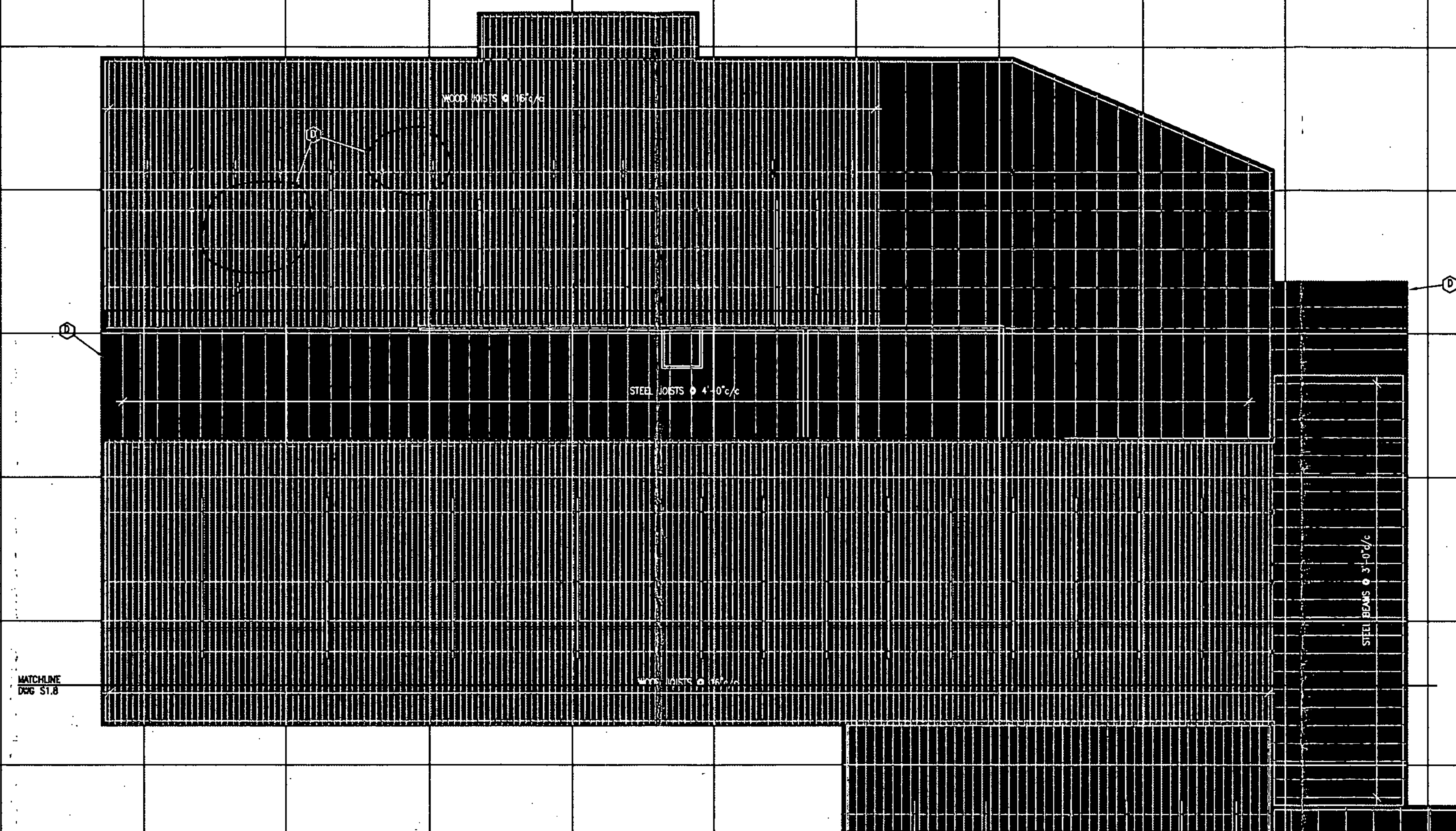
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)
WHITNEY, BAILEY, COX & MAGNANI

PROJECT: Anchor Hocking Ceramics Plant, Chester, WV

TITLE: Second Floor/Low Roof Framing Plan

REV. 0 | CLIENT: ENSR International, Pittsburgh, PA | PROJECT NO. 2004.0284.000

DWG. NO. S1.7



HIGH ROOF FRAMING PLAN

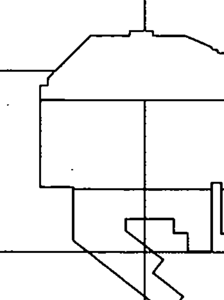
SCALE: 1/16" = 1'-0"

LEGEND:

: INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
: INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
: INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

D. THE ROOF FRAMING IN THIS AREA HAS COLLAPSED AND SHOULD BE CONSIDERED UNSTABLE.



KEY PLAN

ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5365
(412) 221-6373 (FAX)

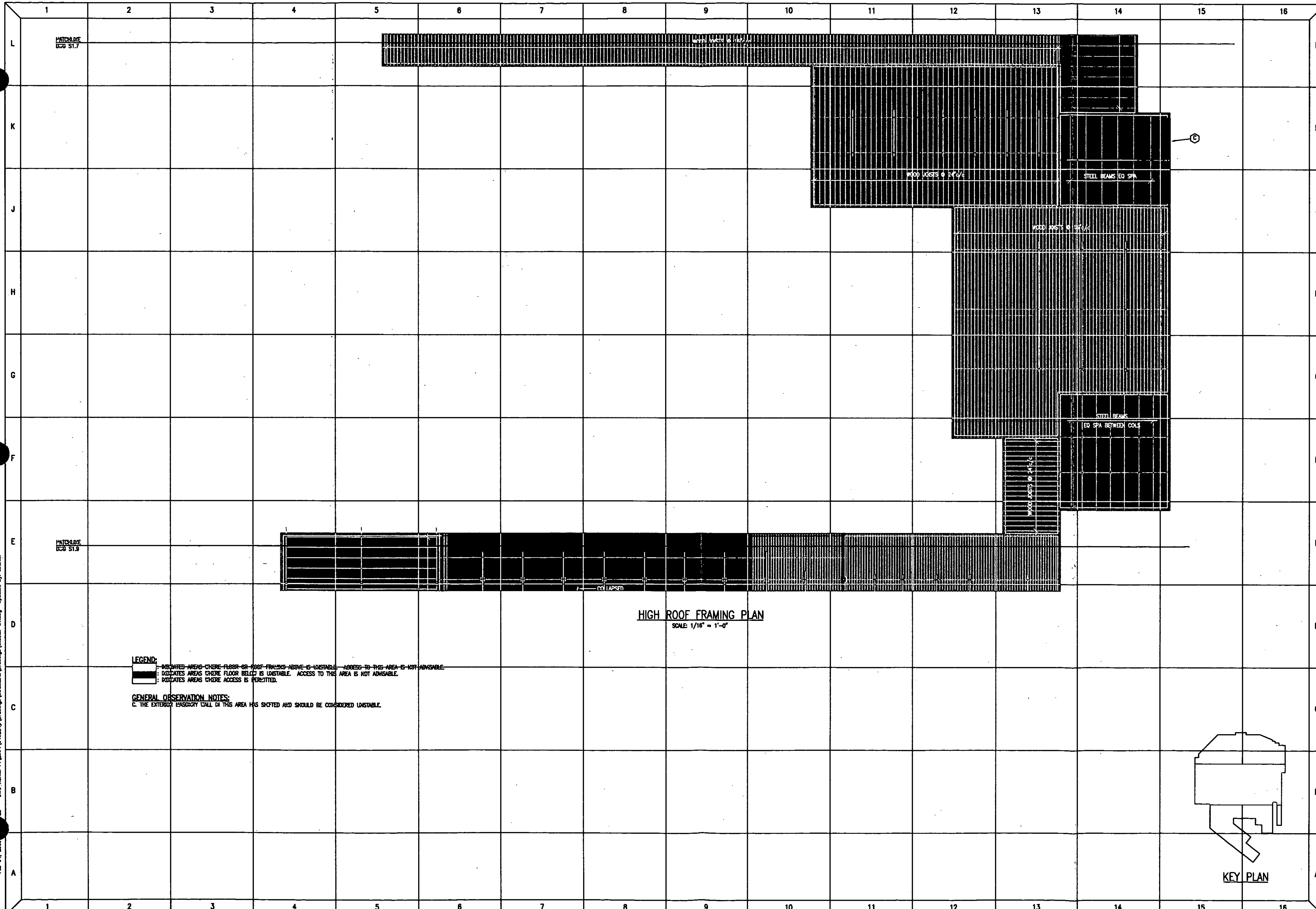
PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE: High Roof Framing Plan

REV. 0 | CLIENT: ENSR International, Pittsburgh, PA | PROJECT NO. 2004.0284.000

DWG. NO. S1.8

Feb 09, 2005 DWG Name: P:\2004\040284p\Drawings\Structural\Drawings\high roof.dwg Updated By: sborter



ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SPB DATE 1/19/05
CH. MTZ DATE 2/18/05
APP. MTZ DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
800 BURSCA DRIVE, SUITE 809
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

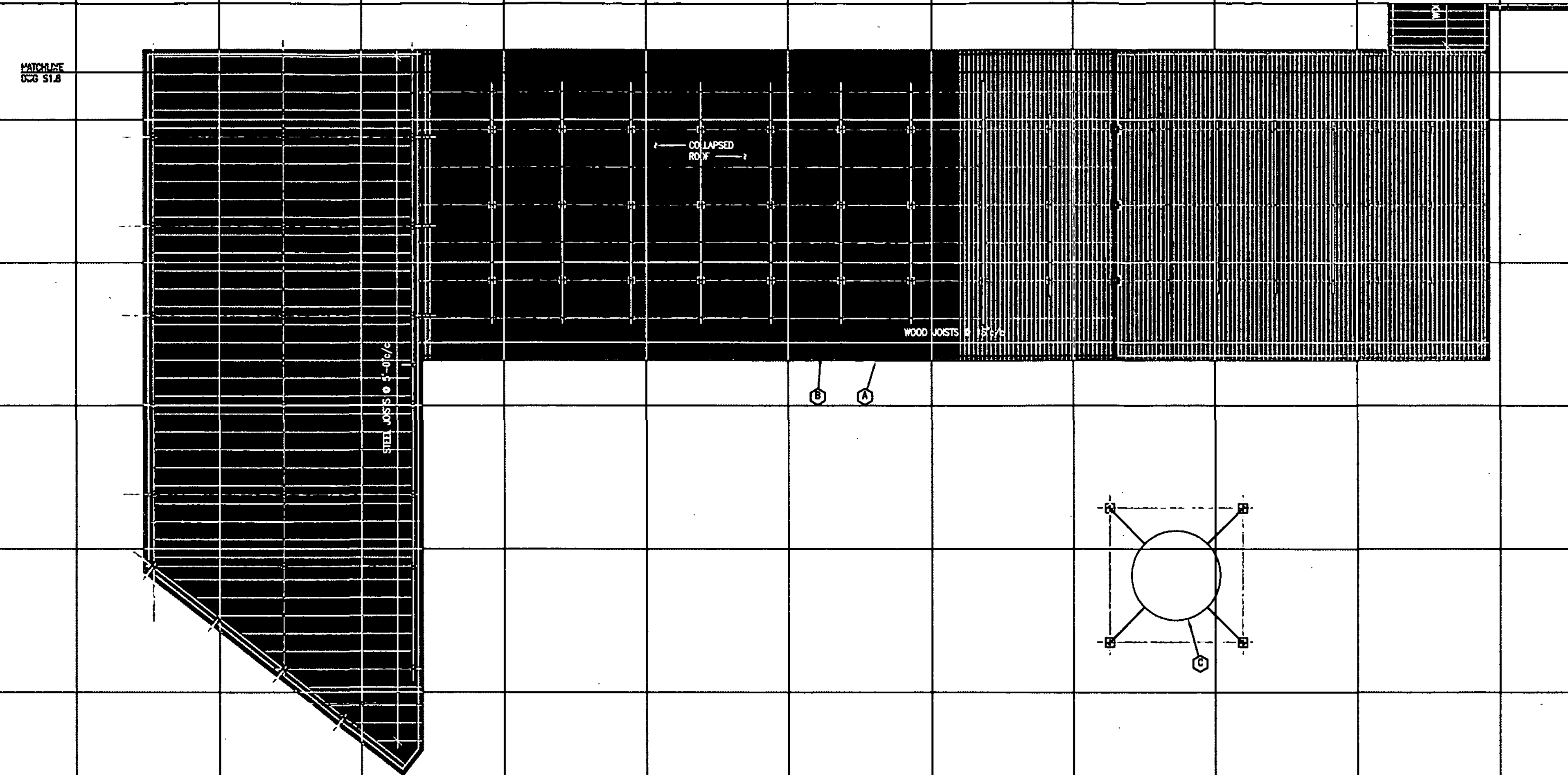
PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE: High Roof Framing Plan

REV. 0 | CLIENT: EKSR International, Pittsburgh, PA | PROJECT NO. 2004.0284.000

DWG. NO. S1.9

Feb 04, 2008 DCG Name: P:\2004\040284p\Drawings\Structural\Drawings\chester cw.dwg Updated By: sbarker



HIGH ROOF FRAMING PLAN
SCALE: 1/16" = 1'-0"

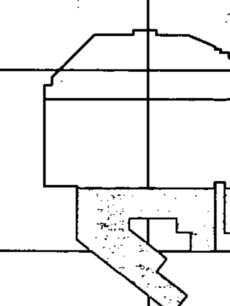
LEGEND:
- INDICATES AREAS WHERE FLOOR OR ROOF FRAMING ABOVE IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- INDICATES AREAS WHERE FLOOR BELOW IS UNSTABLE. ACCESS TO THIS AREA IS NOT ADVISABLE.
- INDICATES AREAS WHERE ACCESS IS PERMITTED.

GENERAL OBSERVATION NOTES:

A. THE ROOF FRAMING IN THIS AREA HAS COLLAPSED TO THE SECOND FLOOR, CAUSING PORTIONS OF THE SECOND FLOOR FRAMING TO FAIL. SEVERE WATER DAMAGE HAS OCCURED TO ALL REMAINING FRAMING. AS A RESULT OF THE DECAY AND ADDED DEAD LOAD, THIS AREA OF THE BUILDING SHOULD BE CONSIDERED EXTREMELY UNSTABLE.

B. A COMPLETE PORTION OF THE EXTERIOR MASONRY WALL AND ALL FLOOR FRAMING IN THIS AREA, HAVE COLLAPSED. THE EXTERIOR MASONRY WALL, ON BOTH SIDES OF THE VOID ARE UNBRACED AND EXTREMELY UNSTABLE. AVOID THIS AREA.

C. WATER TOWER AND TANK IS STRUCTURAL STEEL FRAMING AND STEEL PLATE RESPECTIVELY AND IS IN FAIR CONDITION WITH VARIOUS DEGREES OF SURFACE CORROSION EVIDENT. THE STRUCTURE APPEARS TO BE STABLE. A MORE IN-DEPTH INSPECTION IS RECCOMMENDED IF THE EXISTING TANK'S LADDER IS TO BE USED.



KEY PLAN

ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SCB DATE 1/19/05
CH. WCM DATE 2/18/05
APP. WCM DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

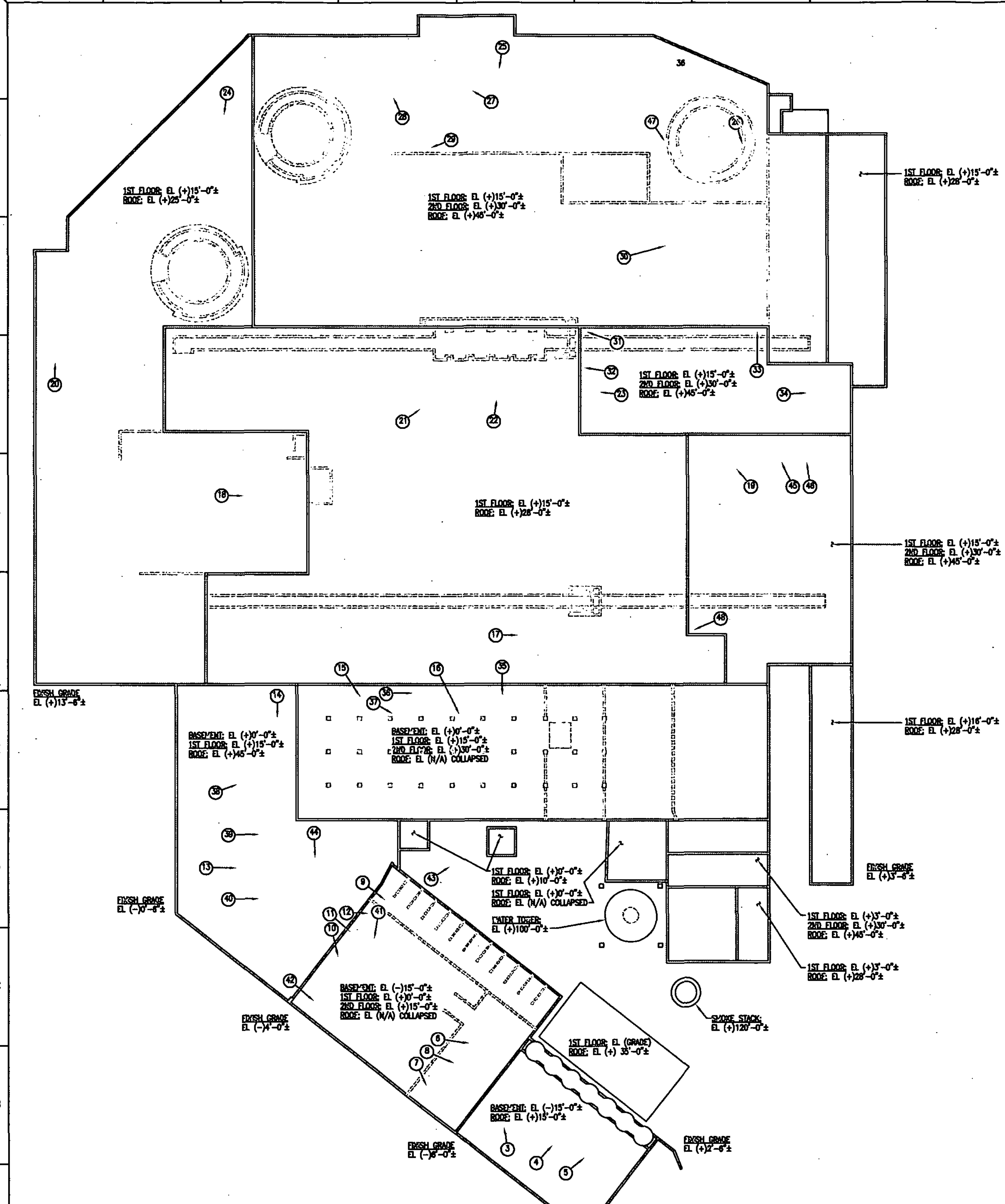
PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE: High Roof Framing Plan

REV. 0 | CLIENT: ENSR International, Pittsburgh, PA | PROJECT NO. 2004.0284.000

DWG. NO. S1.10

AR100226



COMPREHENSIVE PLAN

SCALE: NTS

GENERAL NOTES:

1. COMPREHENSIVE PLAN INDICATES ORIGIN POINT AND DIRECTION OF PHOTOGRAPHS TAKEN. SEE DRAWINGS "S2.0" THRU "S2.3" FOR SITE PHOTOS.

2. PLAN ALSO INDICATES APPROXIMATE FINISH FLOOR ELEVATIONS AND FINISH GRADE ELEVATIONS WITH A DATUM ELEVATION OF 0'-0", TAKEN AT THE APPROXIMATE LOCATION INDICATED. NOTE, THESE ELEVATIONS HAVE BEEN APPROXIMATED BASED ON A VISUAL REVIEW ONLY AND ARE TO BE USED FOR REFERENCE ONLY.

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CONSULTING ENGINEERS
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SCALE: NTS DATE 2/8/05
DR. SZB DATE 2/18/05
CH. MTCT DATE 2/18/05
APP. MTCT

ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

PROJECT: Anchor Hocking Ceramics Plant Chester, WV

TITLE: Comprehensive Plan

REV.	CLIENT	PROJECT NO.
0	ENSR International Pittsburgh, PA	2004.0284.000

DWG. NO. S1.0

AR100227

PHOTO 1

PHOTO 2

PHOTO 3
(BASEMENT)

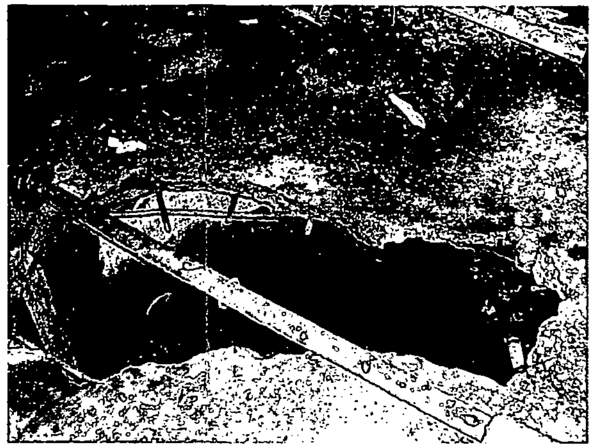

PHOTO 4
(BASEMENT)

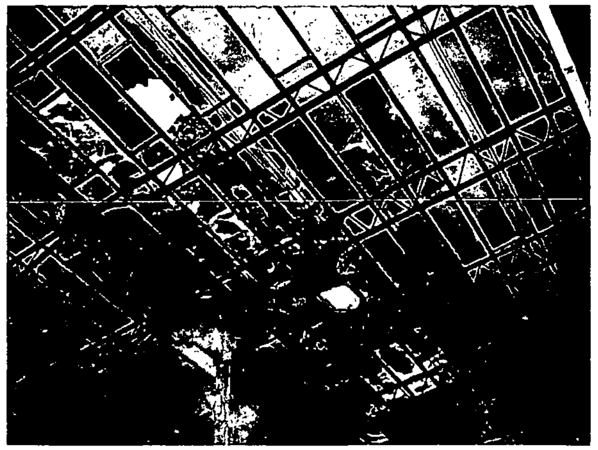

PHOTO 5
(BASEMENT)

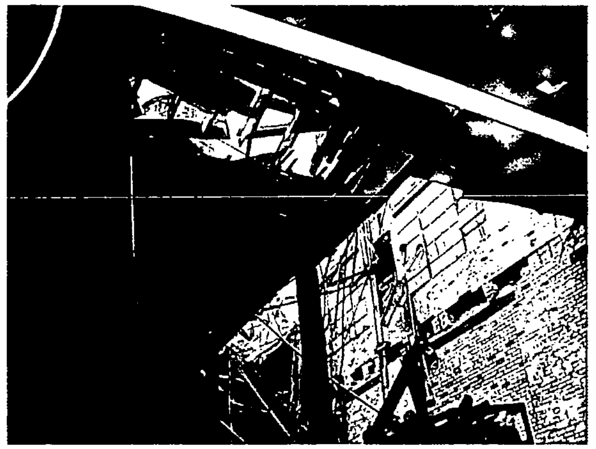

PHOTO 6
(BASEMENT)

PHOTO 7
(BASEMENT)

PHOTO 8
(BASEMENT)

PHOTO 9
(BASEMENT)

PHOTO 10
(BASEMENT)

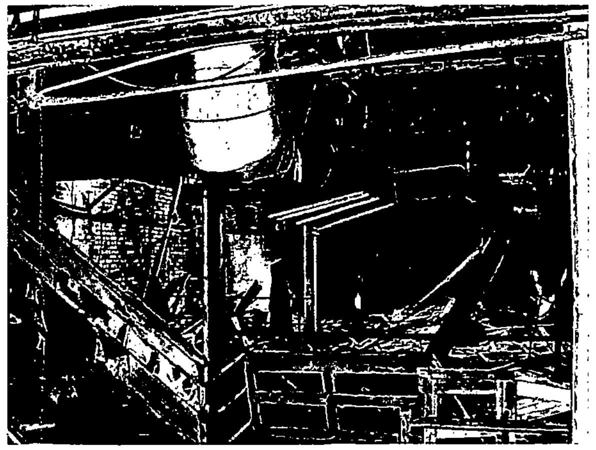

PHOTO 11
(BASEMENT)

PHOTO 12
(BASEMENT)

ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)
WHITNEY, BAILEY, COX & MAGNANI

PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE: Site Photos

REV. 0
CLIENT: ENSR International, Pittsburgh, PA
PROJECT NO. 2004.0284.000

DWG. NO. S2.0

PHOTO 13
(BASEMENT)

PHOTO 14
(FIRST FLOOR)

PHOTO 15
(FIRST FLOOR)

PHOTO 16
(FIRST FLOOR)

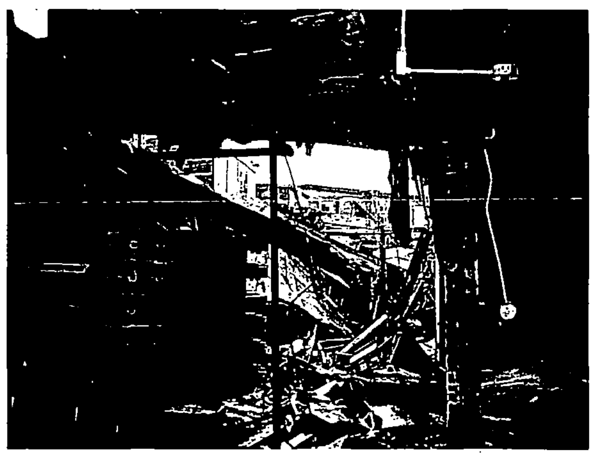

PHOTO 17
(FIRST FLOOR)

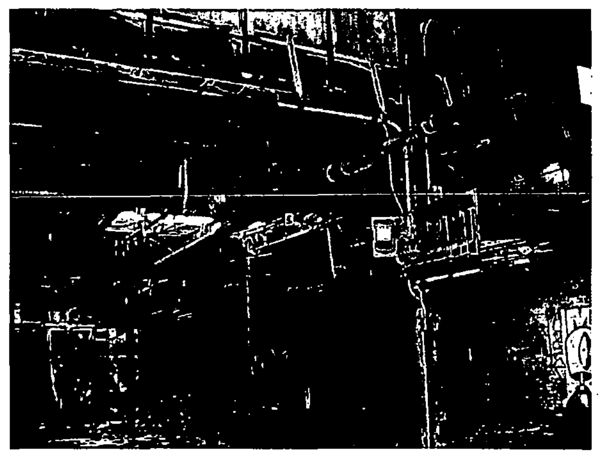

PHOTO 18
(FIRST FLOOR)

PHOTO 19
(FIRST FLOOR)

PHOTO 20
(FIRST FLOOR)

PHOTO 21
(FIRST FLOOR)

PHOTO 22
(FIRST FLOOR)

PHOTO 23
(FIRST FLOOR)

PHOTO 24
(FIRST FLOOR)

ISSUES & REVISIONS

NO	DESCRIPTION	DATE	DR.	CH.

SCALE 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

PROJECT: Anchor Hocking Ceramics Plant
Chester, WV

TITLE: Site Photos

CLIENT: ENSR International
Pittsburgh, PA

PROJECT NO. 2004-0284-000

REV. 0

DWG. NO. S2.1

Feb 04, 2005 - 09:27:23 DWG Name: P:\2004\040284\Drawings\Structural\Drawings\chester wv.dwg Updated By: sbarker

PHOTO 25
(FIRST FLOOR)

PHOTO 26
(SECOND FLOOR)

PHOTO 27
(SECOND FLOOR)

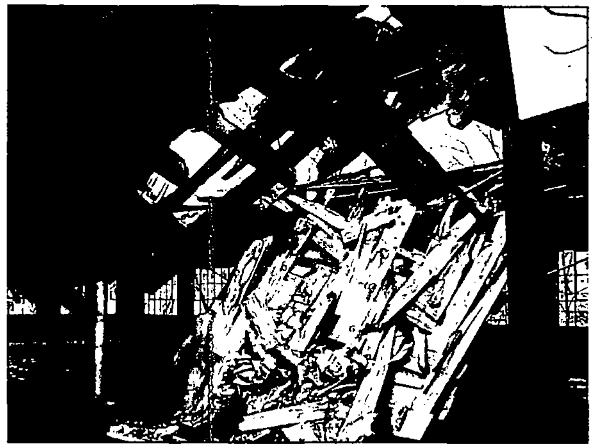

PHOTO 28
(SECOND FLOOR)

PHOTO 29
(SECOND FLOOR)

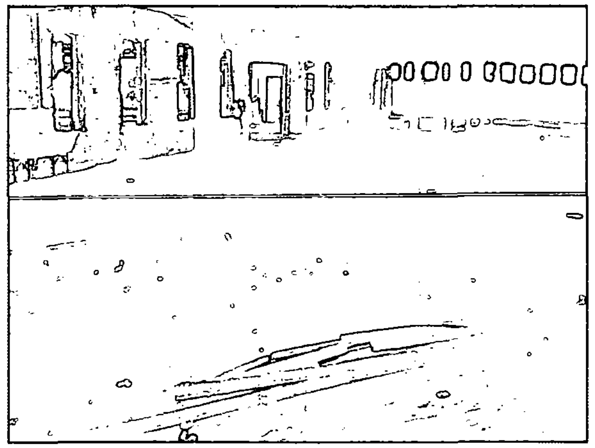

PHOTO 30
(SECOND FLOOR)

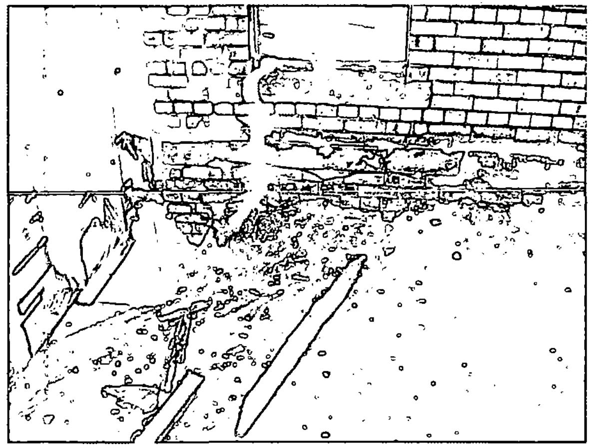

PHOTO 31
(SECOND FLOOR)

PHOTO 32
(SECOND FLOOR)

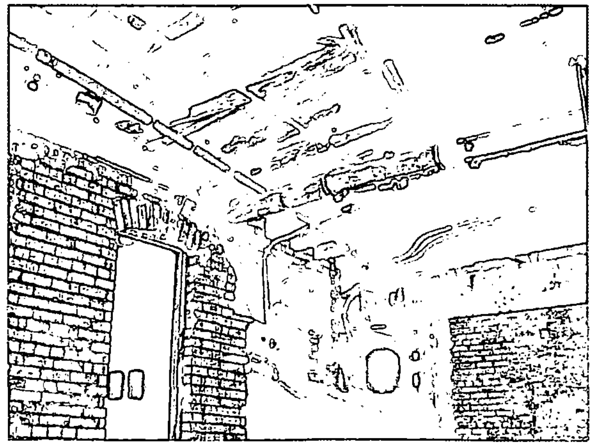

PHOTO 33
(SECOND FLOOR)

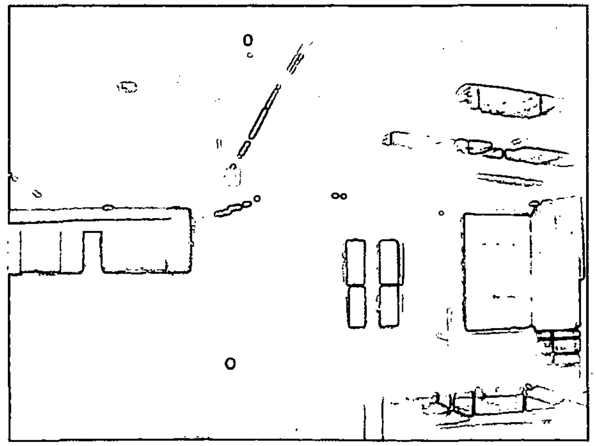

PHOTO 34
(SECOND FLOOR)

PHOTO 35
(FIRST FLOOR)

PHOTO 36
(FIRST FLOOR)

ISSUES & REVISIONS

NO.	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR SWB DATE 1/19/05
CH MDW DATE 2/18/05
APP. MDW DATE 2/18/05

WHITNEY, BAILEY, COX & MAGNANI
CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

PROJECT
Anchor Hocking Ceramics Plant
Chester, WV

TITLE
Site Photos

REV. 0
CLIENT ENSR International Pittsburgh, PA
PROJECT NO 2004.0284.000

DWG. NO.
S2.2

Feb 04, 2005 - 09:27:23 DWG Name: P:\2004\0402846\Drawings\Structural\Drawings\chester wv.dwg Updated By: sbarker

PHOTO 37
(FIRST FLOOR)

PHOTO 38
(FIRST FLOOR)

PHOTO 39
(FIRST FLOOR)

PHOTO 40
(FIRST FLOOR)

PHOTO 41
(FIRST FLOOR)

PHOTO 42
(FIRST FLOOR)

PHOTO 43
(GRADE)

PHOTO 44
(FIRST FLOOR)

PHOTO 45
(SECOND FLOOR)

PHOTO 46
(SECOND FLOOR)

PHOTO 47
(SECOND FLOOR)

PHOTO 48
(SECOND FLOOR)

ISSUES & REVISIONS

NO	DESCRIPTION	DATE	DR.	CH.

SCALE: 1/16" = 1'-0"
DR. SWB DATE 1/19/05
CH. MDW DATE 2/18/05
APP. MDW DATE 2/18/05

CONSULTING ENGINEERS
600 BURSCA DRIVE, SUITE 609
PITTSBURGH, PA 15017
(412) 221-5385
(412) 221-6373 (FAX)

WHITNEY, BAILEY, COX & MAGNANI

PROJECT
Anchor Hocking Ceramics Plant
Chester, WV

TITLE
Site Photos

REV. 0
CLIENT ENSR International Pittsburgh, PA
PROJECT NO. 2004.0284.000

DWG. NO.
S2.3

Appendix C
Boring Logs

Boring Location Depth	C-8 (Hand Auger)	C-9 (Hand Auger)	C-10 (Hand Auger)	C-11 (Hand Auger)	C-12 (Hand Auger)	C-13 (Hand Auger)	C-14 (Hand Auger)	C-15 (Hand Auger)	C-16 (Hand Auger)
0	Fill, silt and clay trace pottery and slag	Fill, sand and silt, some clay, trace slag			Fill, brown sand, gravel and slag, trace pottery	Fill silt, sand, slag damp			
1	Fill, slag, brick and sand		Fill, sand and silt, some brick and slag	Fill, brown sand and clay, some gravel, trace pottery	Brown silt and sand, some clay, trace gravel (natural)			Fill, brown silt and sand some gravel, trace pottery shards and glass	Fill, brown silt and sand, some gravel trace slag, damp
2		Brown silt, some clay (natural)			Brown silt, sand and gravel	Brown silt and sand, trace gravel, damp (natural)	Fill, brown silt and sand, some gravel, concrete and slag		
3	Brown silt and clay, damp (natural)		Brown silt and sand trace gravel, damp (natural)	Brown silt and clay , damp (natural)	auger refusal @ 3.0'			Brown silt and sand, damp (natural)	Brown clay some silt, damp (natural)
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Appendix C
Boring Logs

Boring Location Depth	D-2 (Hand Auger)	D-4 (Hand Auger)	D-7 (Hand Auger)	D-8	D-9	D-10	D-11	D-12	D-13
0			Fill, silty clay, some pottery shards and gravel						
1	Fill brown sand and gravel, some clay, trace pottery shards	Fill, silty clay, some pottery shards and gravel	auger refusal @ 0.7'			Fill, brown sandy clay trace gravel and pottery shards	Fill, brown sandy clay, some pottery shards	Fill, brown sandy clay, some gravel and trace pottery shards	Fill, sandy clay some grave and trace pottery shards, damp
2	Sand and gravel some cobbles (natural)	Sandy clay, some gravel		Fill, brown to black sandy clay, some gravel trace pottery shards	Fill, brown sandy clay, trace pottery shards				
3	auger refusal @ 2.6'	Brown silty clay, trace sand, moist (natural)					Black sand and gravel, moist (natural)		Black sandy clay moist to wet (natural)
4					Black silty clay some sand, moist (natural)			Brown sandy clay, some silt and gravel, moist (natural)	
5						Brown silty clay, trace sand (natural)	Brown silty clay, trace sand		
6				Black silty clay, trace sand moist (natural)	Brown to black silty clay, moist to wet				Brown sandy clay some silt moist to wet
7									
8							Sand and gravel, moist	Brown sand some clay, wet	
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Appendix C
Boring Logs

Boring Location / Depth	D-14	D-15	D-16	D-17	E-2 (Hand Auger)	E-3	E-4	E-5	E-6
0									
1	Fill, brown to gray sand and clay, trace pottery shards	Fill, gray silty clay, some gravel, moist	Fill, brown sandy clay, some gravel and trace pottery shards	Fill, brown sandy clay some gravel, brick and cobbles, damp	Sand and gravel, moist to wet (natural)				Fill, brown silty clay, some pottery shards, damp
2		Brown to black sandy clay moist (natural)			auger refusal @ 1.8'	Fill, brown sandy clay some pottery shards and gravel	Fill, sand, gravel, silty and pottery shards, some clay moist	Fill, brown silty clay some pottery shards	
3									
4	Gray brown and black clay some sand and silt moist (natural)	Sand, gravel and cobbles				Fill, sand and pottery shards			
5			Brown to black sandy clay, some gravel, moist (natural)			Fill, brown sandy clay trace pottery shards and gravel	Fill brown silty clay some pottery shards and sand	Brown silty clay moist to wet (natural)	Brown silty clay, trace sand and wood (natural)
6		Brown sandy clay some gravel and cobbles, damp		Brown to black sandy clay, some gravel, moist (natural)			Brown and green mottled silty clay (natural)		
7	Brown sand and gravel some clay					Brown sandy clay, some silt (natural)		Black silty clay, wet	
8									
9							No recovery		
10						Brown silty clay, some sand			
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Appendix C
Boring Logs

Boring Location / Depth	E-7	E-8	E-9	E-10	E-11	E-12	F-03	F-04	F-05
0									
1	Fill, sand, gravel and pottery shards			Fill, gray sand and gravel some pottery shards	Fill, sand, gravel and pottery shards, trace clay	Fill, sand, gravel and pottery shards, some clay		Fill, brown silt and trace sand and clay	Fill, brown silt, trace sand and clay
2	Fill brown silty clay, trace pottery shards	Fill, sand and gravel trace clay and pottery shards	Fill sand and gravel some silt, clay and pottery shards			Fill, gray silty clay, some pottery shards	Fill, silty clay with trace pottery shards		
3	Fill, silt, clay and pottery shards			Fill sandy clay, some gravel		Brown silty clay, some sand and gravel (natural)		Fill, brown silt and trace sand clay and pottery shards	Fill, brown silt some pottery shards
4			Brown silty clay, some sand (natural)						
5					Brown silty clay some sand (natural)		Fill, silty, sandy clay with trace pottery shards		
6	Gray silty clay, moist (natural)	Gray to black mottled silty clay (natural)		Gray to black mottled silty clay (natural)		Brown sandy clay, some silt, damp		Fill, primarily pottery shards, some silt.	Fill, primarily pottery shards some silt
7			Gray silty clay trace sand, wet				Brown silty clay (natural)		
8								Brown silt and clay (natural)	
9									
10	No recovery				Brown sand and gravel, some clay, wet				No Recovery
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Appendix C
Boring Logs

Boring Location Depth	F-06	F-07	F-08	F-09	F-10	F-11	F-12	F-13	F-15
0									
1		Fill, brown silt, trace sand and pottery shards	Fill, brown silt	Fill, brown silt	Fill, brown silt, some pottery shards		Fill, brown silt, some pottery shards		
2	Fill silt trace sand, clay and pottery shards	Primarily pottery shards	Fill, silt and pottery shards	Fill, brown silt and sand, trace pottery shards Fill, silt and pottery shards		Fill, brown silt with some pottery shards trace sand	Fill, Silt and pottery shards	Fill, brown silt sand and trace gravel	Fill, brown sandy clay, some silt and trace pottery shards
3				Fill brown silt trace pottery shards			Fill, brown silt some sand		
4			Brown to black silt, trace pottery shards at top		Fill, brown to gray silt and clay some sand	Fill brown silt and pottery shards			
5	Fill primarily pottery shards some silt	Brown to black silt with some sand (natural)	Gray sand and gravel (natural)	Gray silt and clay (natural)			Gray silt and sand (natural)	Fill, brown silt, some pottery	
6					Brown silt and sand (natural)	Brown silt, trace sand (natural)			Brown sandy clay, some silt and gravel (natural)
7			Gray clayey silt, wet	Gray silt some sand			Brown silt and sand, trace gravel	Brown silt some clay (natural)	
8	Gray to black clayey silt (natural)				Brown clayey silt				
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11	Silt and sand, some gravel								
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Appendix C
Boring Logs

Boring Location / Depth: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

F-17
- Fill, brown sand and gravel, some clay, damp
- Brown sand and gravel some silt and clay (natural)

G-02 (Hand Auger)
- Brown sand and silt, some clay (natural)
- auger refusal @ 3.5'

G-03
- Fill, silty clay, some sand
- Primarily pottery shards
- Fill, silt, sand, gravel and pottery shards
- Fill, brown silty clay
- Sand, some clay and trace pottery shards

G-04
- Fill, silty clay
- Primarily pottery shards
- Fill, silty clay with gravel and pottery shards
- Primarily pottery shards
- Fill, gray clay and pottery shards

G-5
- Fill, silty clay, trace pottery shards
- Fill, brown sand and pottery shards some clay
- Fill, gray silty clay, trace pottery shards moist to wet
- Gray silty clay moist to wet (natural)

G-06
- Fill, silty clay and pottery shards
- Fill, sand and pottery shards
- Brown silty clay (natural)

G-07
- Fill, clay, silt, sand and pottery shards
- Fill, gravel and pottery shards
- Fill, gray silty clay, gravel and pottery shards, trace wood
- Refusal @ 10.3

G-8
- Fill, brown silty clay, some sand and pottery shards
- Fill gray silty clay and pottery shards
- Fill, gray silty clay and pottery shards
- Black silty clay, moist (natural)
- No recovery

G-09
- Fill, gray silty clay, sand and pottery shards
- Fill, gray clay and pottery shards
- Fill, mottled gray silty clay, some sand

Appendix C
Boring Logs

Boring Location	G-10	G-11	G-12	G-13	G-14	G-15	G-16	GH-16	H-2 (Hand Auger)
Layer 1	Fill , silty clay and pottery shards	Fill, black silty clay, some sand and pottery shards	Fill, brown, silty clay some sand and pottery shards	Fill, sand and gravel, some clay.	Fill, silty clay, some sand	Fill, clay some sand and gravel, trace pottery.	Brown, sandy clay some silt and gravel, damp (natural)	Fill, brown silty clay, some sand	Brown silty clay, some sand, moist to wet (natural)
Layer 2	Fill primarily pottery shards	Fill, white pottery shards some sandy clay	Fill, primarily pottery	Fill, sand and gravel, some clay and pottery shards	Fill, black sandy clay, some silt, trace pottery shards		Brown sand and gravel, trace clay	Fill, black silty clay, trace pottery shards	
Layer 3	Fill, brown silty clay, some pottery shards	Black silty clay, trace pottery shards, moist	Fill, brown silty clay some sand and pottery shards	Fill, silty clay some sand and gravel trace pottery shards	Brown silty clay, some sand and trace gravel (natural)			Light brown sand and gravel, some clay (natural)	
Layer 4	Fill, mottled gray silty clay, trace pottery shards	Gray silty clay, moist to wet (natural)	Brown sandy clay (natural)	Brown sand, silt and clay, some gravel (natural)					
Layer 5		Brown silty clay, some sand and gravel	Brown sand, some clay	Brown sand and gravel, some silt and clay					
Layer 6		Brown sandy clay, some gravel, wet							

Depth: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

Appendix C
Boring Logs

Depth: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

Boring Location	
H-3 (Test Pit)	Fill, silt, sand, gravel and concrete, some pottery shards Fill, clay and pottery shards
H-4	Fill, black sand and gravel, trace pottery shards Fill, brown sandy clay some gravel and trace pottery shards Fill, white pottery shards, damp Fill, gray silty clay some pottery shards, wet Brown sand and gravel, some cobbles, wet (natural) Brown sandy clay some gravel and cobbles wet
H-5	Fill, brown sand clay, some gravel and pottery shards Fill, white pottery shards and sand, trace brick, damp Black sandy clay, some gravel, wet (natural) Gray silty clay some sand and gravel, wet
H-6	Fill, white to tan pottery shards, sand and clay, damp Black silty clay, some gravel (natural) Brown sand and gravel some cobbles
H-7	Fill, white, gray, and brown pottery shards, clay and sand, damp Fill, black sand and pottery shards, wet no recovery Gray to brown silty clay, moist to wet (natural) Brown sand and gravel, wet
H-8	Fill, brown sand and white pottery shards Fill, gray silty clay and pottery shards, wet Fill, black sand and pottery shards Black sand and gravel, wet (natural) Brown to black silty clay and sand Refusal @ 39'
H-9	Fill, white pottery shards Fill, white pottery shards and clay Gray to black silt, sand and gravel some clay (natural) Brown sand and gravel trace clay
H-10	Fill, gray silty clay and pottery shards Fill, white pottery shards, some gray silt and clay Brown sand and gravel some clay (natural)
H-11	Fill, white pottery shards, some gray silty clay Fill, white pottery shards and sand, some gray silty clay, moist Black silty clay, moist to wet (natural) Brown sand and gravel, some clay Gray to black mottled silty clay

Appendix C
Boring Logs

Boring Location	H-12	H-13 (Test Pit)	H-14 (Test Pit)	H-15	H-16	H-17	I-2	I-3 (Test Pit)	I-4 (Hand Auger)
	Fill, sand, silt, clay and pottery shards	Fill, brown sandy clay, some pottery shards and silt.	Fill, silty clay and pottery shards	Fill, gray silty clay	Silty clay, some sand and gravel.	Fill, brown sandy clay some gravel and trace pottery shards	Cobbles, no boring	Fill, silt sand and gravel some pottery shards	Fill, sand, gravel and pottery shards, some silty clay
	Fill, white pottery shards and clay damp to moist	Fill, brown sandy clay some pottery shards	Brown sandy clay some cobbles, wet (natural)	Fill, sand and gravel, some brick and pottery shards	Fill, black silt , some clay	Fill, gray silty clay		Fill, brick, pottery shards, sand and gravel	auger refusal at 1.7'
	Fill, black clay some silt and sand, trace pottery shards	Brown sand, some clay (natural)		Fill, black silty clay some sand and pottery shards, trace gravel	Fill, silty clay, some sand	Brown sand and gravel, trace clay (natural)		Fill, pottery shards, clay and sand	
	Brown to gray clay, some silt and sand, trace cobbles, moist (natural)			Black silty clay, some sand, moist (natural)	Sand and gravel, trace clay (natural)	Brown to black sandy clay some silt trace gravel			
				Brown sand and gravel some clay and silt					

Depth: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

Appendix C
Boring Logs

Depth: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

Boring Location	
I-6 (Test Pit)	Fill, pottery shards, brick some sand
I-8 (Test Pit)	Fill, silt and bricks; Fill, clay and pottery shards
I-10	Fill, primarily pottery, trace sand; Fill, brown and red sand and gravel, trace pottery shards; No recovery; Fill, white pottery, some sand; Fill, gray silty clay, some pottery shards; Fill, black sand and pottery shards; Black silt clay, wet (natural)
I-11	Fill, silty clay and white and gray pottery shards; Fill, primarily pottery some silt, clay and sand; Fill brown silty clay some pottery shards; Black silty clay, trace sand (natural)
I-12	Fill, sand and silt some clay and trace pottery shards; Fill, white to gray to black silty clay with pottery shards and some sand; Fill, brown to black silty clay some pottery; Refusal @ 33'
I-13	Fill, brown silty clay, some sand; Fill, white clay and pottery shards; Fill, blue to gray silty clay and pottery shards; Fill, gray to black mottled clay; Fill, white clay and pottery shards; Black silty clay some sand, wet (natural)
I-14	Fill, white to gray clay and pottery shards; Gray to black silty clay some sand (natural)
I-15 (Hand Auger)	Fill, gray clay, some pottery shards; auger refusal @ 1.5'
I-16 (Hand Auger)	Fill, brown sand and gravel, trace clay; Refusal at 2.2' End of boring

Appendix C
Boring Logs

Boring Location Depth	I-17	J-2 (Hand Auger)	J-3 (Hand Auger)	J-11	J-12	J-13	J-14	J-15	J-16 (Hand Auger)
0		Brown sand and clay some silt and cobbles (natural)				Fill, sand and silt some clay and pottery shards	Fill, brown sandy clay	Fill, brown sandy clay, trace silt and pottery shards	Fill, brown silt and organic matter
1		auger refusal @ 0.6'			Fill, sand and gravel some pottery shards				
2			Fill, topsoil and pottery shards		Fill, white, gray and red mottled clay and pottery shards				Fill, white to gray clay and pottery shards
3						Fill, gray mottled clay and pottery shards			
4	Fill, brown sandy clay and gravel, trace pottery shards			Fill, pottery shards and silty clay, some sand					
5									
6									
7									
8					Fill, white sand and pottery shards, trace clay				
9							Fill, white gray and blue clay and pottery shards	Fill, white clay and pottery shards	
10	Brown to black sandy clay, some silt and gravel, wet (natural)								
11				Brown silty clay some pottery shards					
12						Fill, white clay moist to wet			
13									
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21					Fill, black, gray and white silty clay some sand and pottery shards				
22									
23				Fill, white clay and pottery shards, some sand				Fill, black to gray sandy clay, some silt and brick	
24									
25								Black sandy clay some silt, trace clay and gravel moist to wet (natural)	
26							Black silty clay, wet (natural)		
27									
28						Fill, black and white mottled clay and silt some pottery shards			
29									
30							Black to brown sandy clay, some silt, wet		
31									
32									
33					Black and gray mottled silty clay (natural)				
34						Black sand and gravel some clay			
35									
36				Black silty clay, trace pottery shards	Black sandy clay				
37									
38				Brown to black mottled silty clay, some sand (natural)					
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Appendix C
Boring Logs

Depth scale (Boring Location Depth): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

Boring Location	
J-17 (Hand Auger)	Fill, brown sand and clay trace pottery; Fill, white and black mottled clay; Brown sand and gravel (natural)
K-2	Fill, silty sand, pottery shards and glass
K-11	Fill, brown sandy clay, some gravel and trace pottery shards, damp; Fill, brown sand, gravel and pottery shards, damp; Fill, white clay and pottery shards moist to wet; Fill, slag; Refusal @ 24.8'
K-12	Fill topsoil and pottery shards; Fill, sandy clay, some silt and pottery shards; Fill, sand and silt; Fill, primarily pottery, white; Fill, clay and pottery shards; Fill, brown sand; Fill gray silty clay, some pottery shards; Fill, orange sand and gravel trace pottery; Fill, gravel; Fill, orange silty clay, some sand; Fill, black slag; Refusal @ 27'
K-13	Fill, silt sand, clay and pottery shards; Fill, sandy clay, some silt and pottery shards; Fill brown silty clay, trace pottery shards; Fill brown, gray and black mottled clay and pottery shards; Fill, terracotta pipe @ 28 ft black sand and silt, wet; Gray silty clay, trace sand wet (natural)
K-14	Fill, black sand and silt; Fill, gray, blue and white clay and pottery shards; Fill, brown sandy clay, moist; Fill, white to gray silty clay and pottery shards, wet; Fill, black sandy clay some pottery shards; Black silty clay some sand (natural); Refusal @ 22.5'
K-15	Fill, brown silt; Fill, white to gray clay and pottery shards; Fill, white to gray mottled silty clay and pottery shards; Black sand, some clay, wet (natural); Black sandy clay some silt, wet
K-16 (Hand Auger)	Fill, brown silt and organic matter; Fill, gray to white clay and pottery shards
K-17 (Hand Auger)	Fill, black silty clay, some sand and gravel; Fill, gray silty clay some black mottling at bottom

Appendix C
Boring Logs

Boring Location / Depth	L-13	L-14	L-15	L-16	L-17 (Hand Auger)	M-2 (Hand Auger)	M-13	M-14	M-15
0									
1	Fill, silt, sand and gravel	Fill, sandy clay with brick and pottery	Fill, brown to black silt		Fill, brown silt and organics	Fill, brown sandy clay trace pottery shards			Fill, brown sandy clay, some brick, gravel and pottery shards, moist to wet
2	No recovery	Fill, white clay and pottery		Fill, silty clay some sand and pottery shards, moist	Fill, gray to white clay and pottery shards		Fill, sandy clay and trace pottery shards		
3			Fill, white to gray pottery shards some silt			Brown sand and cobbles (natural) auger refusal @ 2.8'			
4		Fill, gray silty clay, trace pottery			Gray clay some silt and trace gravel, wet (natural?)		Fill, gravel	Fill, silt, some sand, trace pottery shards , damp	Fill gray sand and gravel some pottery shards, silt and clay, damp
5	Fill, black sandy clay, some pottery shards								
6			Fill, orange, black and brown silt, brick and pottery shards	Fill, gray silty clay and pottery shards, moist			Brown sandy clay some gravel (natural)		
7									Fill, brown sandy clay some pottery shards
8	Fill, white clay and some pottery shards								
9									
10				Black sandy clay, trace gravel and silt (natural)				Fill, black, gray and brown silt, some sand brick and trace pottery shards	Fill, white to gray pottery shards some sand and silt
11		Fill, white clay and pottery shards, trace sand and gravel	Fill, brown silt, some sand, moist						
12								Brown silt, some clay, trace sand, moist (natural)	
13									
14			Fill, pottery shards, silt and clay, some slag						
15								Brown sand and gravel some silt damp	
16	Brown sand and gravel some clay (natural)		Brown silt, some sand, trace pottery shards						
17									Brown silt some sand and gravel moist (natural)
18			Gray to black sand and silt (natural)						
19									
20									
21		Fill, black silty clay, some pottery shards							
22									
23		Black silt some clay and wood (natural)							
24									
25									
26		Sandy clay some silt and gravel							
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Appendix C
Boring Logs

Boring Location	M-16	N-2 (Hand Auger)	N-11	N-14	N-15	N-16 (Hand Auger)	O-2 (Hand Auger)	O-11	O-14
	Fill, brown silty clay trace sand and organic matter	Fill, topsoil and pottery shards	Fill, black sand, some clay and silt, trace pottery shards	Fill, black sand and pottery shards, some gravel, trace clay	Fill, gray silty clay, some sand and pottery shards trace slag	Fill, gray silt some clay, damp	Fill, black topsoil, track pottery shards	Fill, brown sand and clay, trace pottery shards	Fill, brown sandy clay some pottery shards and gravel
	Fill, white clay and pottery shards	auger refusal @ 2.0'	Fill, gray to black silty clay and pottery shards, trace sand and brick	Fill, brown and black silty clay, some sand and pottery shards	Fill, brown silty clay, some pottery shards and trace gravel	Fill, gray silt, some cinders, wet		Brown sand, trace clay (natural)	Fill, brown sandy clay trace pottery shards, damp
	Fill, brown to gray silty clay and some sand and trace gravel		Gray to black silty clay, some sand (natural)	Brown sandy clay trace gravel (natural)	Brown sandy clay, some silt (natural)				Brown sandy clay, moist (natural)
	Fill, black sandy clay, some silt		Brown sand, trace clay, moist to wet.		Brown sand and gravel, trace clay				
	Fill, black sand and gravel, some pottery shards								
	Green sand and gravel some clay, moist to wet (natural)								

Depth: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

Appendix C
Boring Logs

Boring Location / Depth	O-15	O-16 (Hand Auger)	O-17 (Hand Auger)	P-2	P-11	P-12	P-14	P-15	P-16
	Fill, black sand and gravel	Fill, brown silt some sand	Fill, sand and gravel	Fill, brown silt, trace pottery shards	Fill, black and cinders some gravel	Fill, black cinders, gravel and pottery shards	Fill, black silty clay, some sand and gravel, trace pottery shards	Fill, brown silty clay, some sand some slag	Brown sand and gravel, damp (natural)
	Fill, brown sand, clay and pottery shards	Fill, brown silt some pottery shards, trace sand	Brown sand and gravel some clay	Fill, silt and sand, some gravel and pottery shards	Black to brown sandy clay trace brick and gravel	Brown to black silty clay (natural)	Brown sand some clay, moist (natural)	Fill, brown sandy clay, some gravel, trace pottery shards, moist	Brown sandy clay, moist
	Brown sandy clay (natural)	Orange to brown silt, some sand and trace gravel (natural)	auger refusal @ 3.8'	auger refusal @ 3.0'	Brown sand, some clay, trace gravel (natural)	Gray to black mottled clay		Brown clay, some sand moist to wet (natural)	
						Brown sand trace clay			

Depth: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

Appendix C
Boring Logs

Boring Location / Depth	R-13	R-14	R-15	R-16 (Hand Auger)	R-17	S-13	S-14	S-15	S-16
0				Fill, silt brick and cobbles					
1	Fill, black sand and gravel, trace silt and clay, damp	Fill, black sand and gravel, some clay		auger refusal		Fill, black sand and gravel, some silt and clay	Fill, black silt, sand and gravel	Fill, black sand and gravel	
2			Fill, black sand and gravel, some pottery shards		Brown sandy clay, some gravel (natural)				Fill, sand and gravel, some silt and clay, damp
3	Brown sand, some gravel, silt and clay (natural)							Brown sandy clay (natural)	
4							Brown silty slay, some sand, damp (natural)		
5	Brown sandy clay, some silt, damp	Black and gray mottled silty clay, trace sand, moist to wet (natural)				Brown sandy clay, some silt moist (natural)			
6					Brown sand and gravel, some clay			Brown sand some clay	Brown sand, some clay (natural)
7	Brown sand, some clay						Gray sandy clay, some silt, moist to wet		
8			Brown sand some clay, moist (natural)						
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10		Brown sand, some clay, wet							
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Appendix C
Boring Logs

Boring Location Depth	S-17	T-15	T-16	T-17	T-18 (Hand Auger)	U-17 (Hand Auger)
0		Black topsoil	Black topsoil, sand and gravel		Fill, black silty clay, some sand, moist	
1						Fill, brown silty clay some sand and gravel, trace slag and pottery shards
2	Fill, black silty clay, some pottery shards			Fill, black silty clay, gravel and brick trace pottery shards	Brown silty clay, some sand and gravel (natural)	
3						Brown sandy clay, some silt and gravel (natural)
4		Brown sand, some clay (natural)	Brown sand, some clay (natural)			
5						
6	Black sandy clay, some silt, wet (natural?)			Brown sand, some clay, trace gravel (natural)		
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Appendix F
TRESPASSING TEENAGER

Receptors Evaluated	
Receptor:	Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER INCIDENTIAL INGESTION AND DERMAL CONTACT SURFACE SOIL		**Assumed Value**	**Units**	**Calculated Value**
Soil Ingestion Rate	Trespassing Teenager	100	(mg soil/day)	
Soil on Skin	Trespassing Teenager	0.04	(mg/cm^2)	
Skin Exposed	Trespassing Teenager	4672	(cm^2)	
Body Weight	Trespassing Teenager	47	(kg)	
Exposure Frequency	Trespassing Teenager	52	(days)/365(days) =	1.42E-01
Exposure Duration (cancer)	Trespassing Teenager	11	(years)/70(years) =	1.57E-01
Exposure Duration (noncancer)	Trespassing Teenager	11	(yrs)/11(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1.00E-06	(kg/mg)	

Appendix F
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Ing. (mg/kg-day)	ADDder Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Der. (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Arsenic	1.00E+00	0.4	0.03	1.50E+00	1.91E-08	1.91E-08	2.67E-09	2.67E-09	2.86E-08	4.01E-09	3.26E-08

Appendix F
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Ing. (mg/kg-day)	ADDder Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Der. (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
Arsenic	1.00E+00	0.4	0.03	3.00E-04	1.21E-07	1.21E-07	1.70E-08	1.70E-08	4.04E-04	5.66E-05	4.61E-04

Appendix F
TRESPASSING TEENAGER

Receptors Evaluated:	
Receptor:	Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER INHALATION OF OUTDOOR AIR FROM SOIL		**Assumed Value**	**Units**	**Calculated Value**
Inhalation Rate	Trespassing Teenager	1.2	(m^3 air/hour)	
Body Weight	Trespassing Teenager	47	(kg)	
Exposure Time	Trespassing Teenager	2	(hrs/day) =	2.00E+00
Exposure Frequency	Trespassing Teenager	52	(days)/365 (days) =	1.42E-01
Exposure Duration (cancer)	Trespassing Teenager	11	(yrs)/70(yrs) =	1.57E-01
Exposure Duration (noncancer)	Trespassing Teenager	11	(yrs)/11(yrs) =	1.00E+00
Lifetime		70	(years)	

Appendix F
CARCINOGENIC ASSESSMENT
INHALATION OF OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	ADDinh Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose - Inh. (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
Arsenic	1.65E-09	1	1.51E+01	1.89E-12	1.89E-12	2.85E-11

Appendix F
NONCARCINOGENIC ASSESSMENT
INHALATION OF OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
Arsenic	1.65E-09	1	8.76E-06	1.20E-11	1.20E-11	1.37E-06